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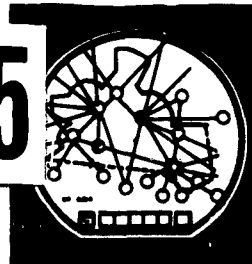
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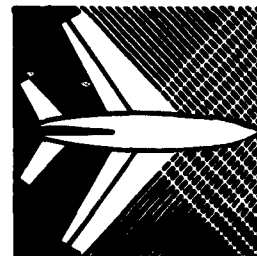
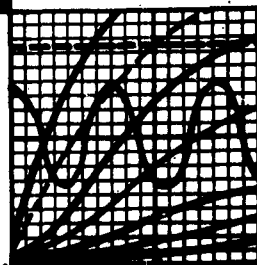
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FINAL REPORT

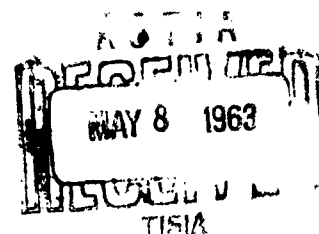
Project No. 104-602T

Sub-Task 3



COMPUTER PROGRAMMING
OF PHASE I MASTER PROGRAM
(VOLUME II)

JUNE 1962



FEDERAL AVIATION AGENCY
Systems Research & Development Service
EXPERIMENTATION DIVISION
Atlantic City, New Jersey

FINAL REPORT
COMPUTER PROGRAMMING
OF PHASE I MASTER PROGRAM
(VOLUME II)

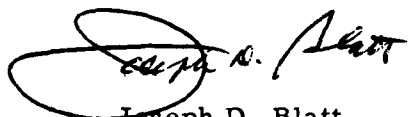
PROJECT NO. 104-602T
Sub-Task 3
Work Detail C

Prepared by:

Don W. Vogel
Kenneth W. House
William Brown
Raymond J. Hilton
Robert B. Stein

June 1962

This report has been approved for general distribution.



Joseph D. Blatt
Director, Systems Research
and Development Service
Federal Aviation Agency

Experimentation Division
National Aviation Facilities Experimental Center
Atlantic City, New Jersey

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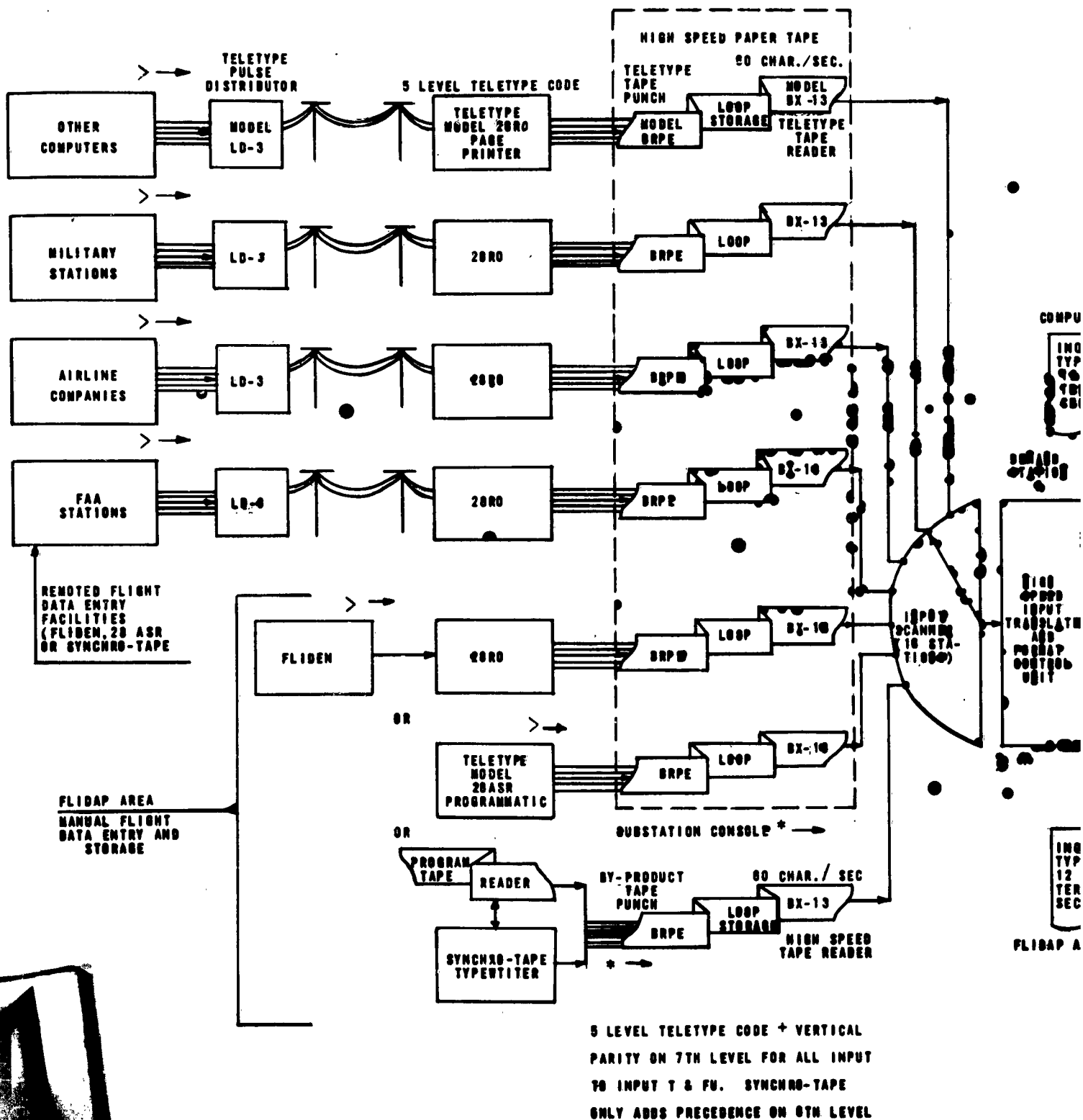
**FINAL REPORT
COMPUTER PROGRAMMING
OF PHASE I MASTER PROGRAM**

VOLUME II

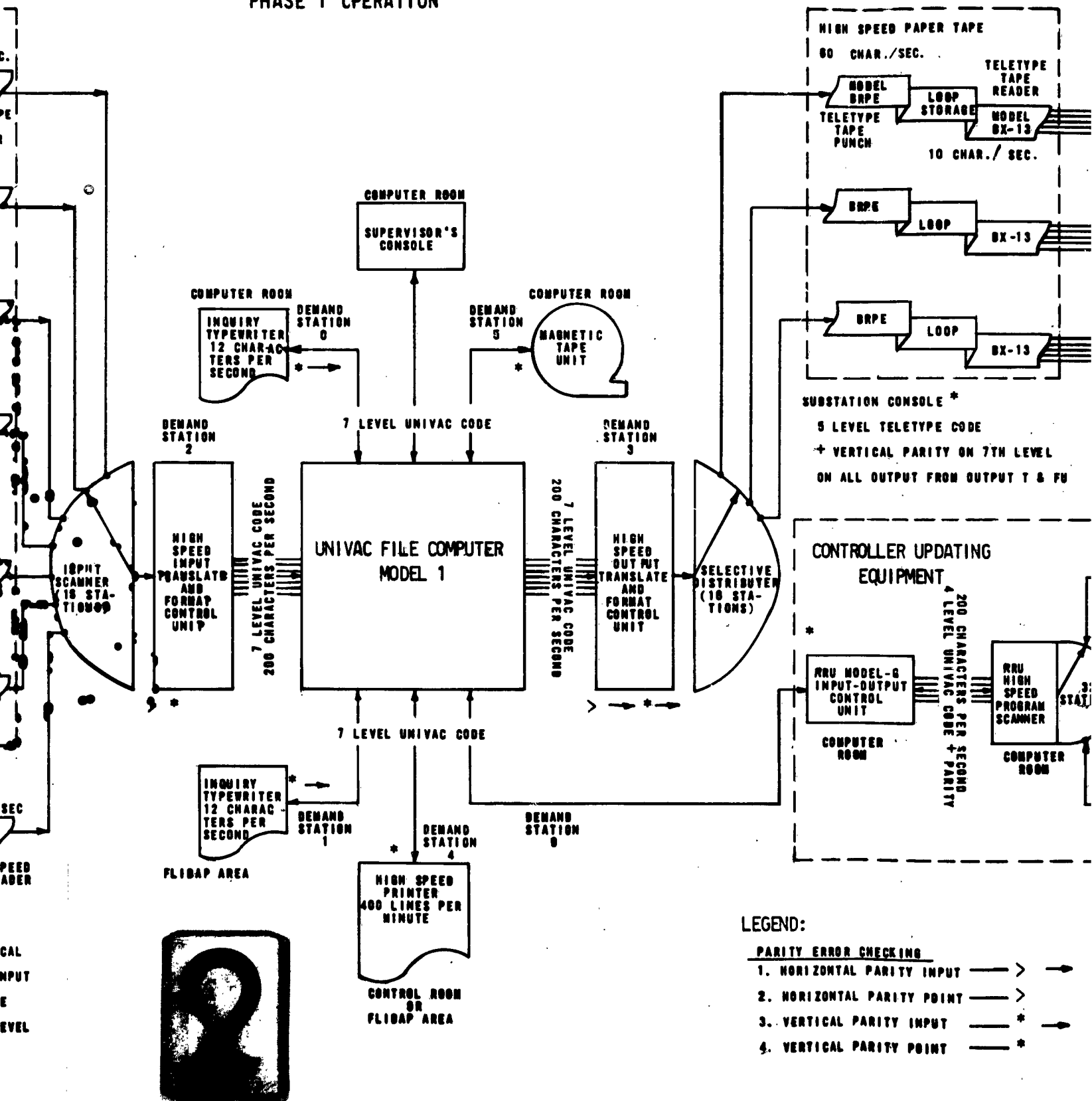
**APPENDIX II
THROUGH
APPENDIX IX**

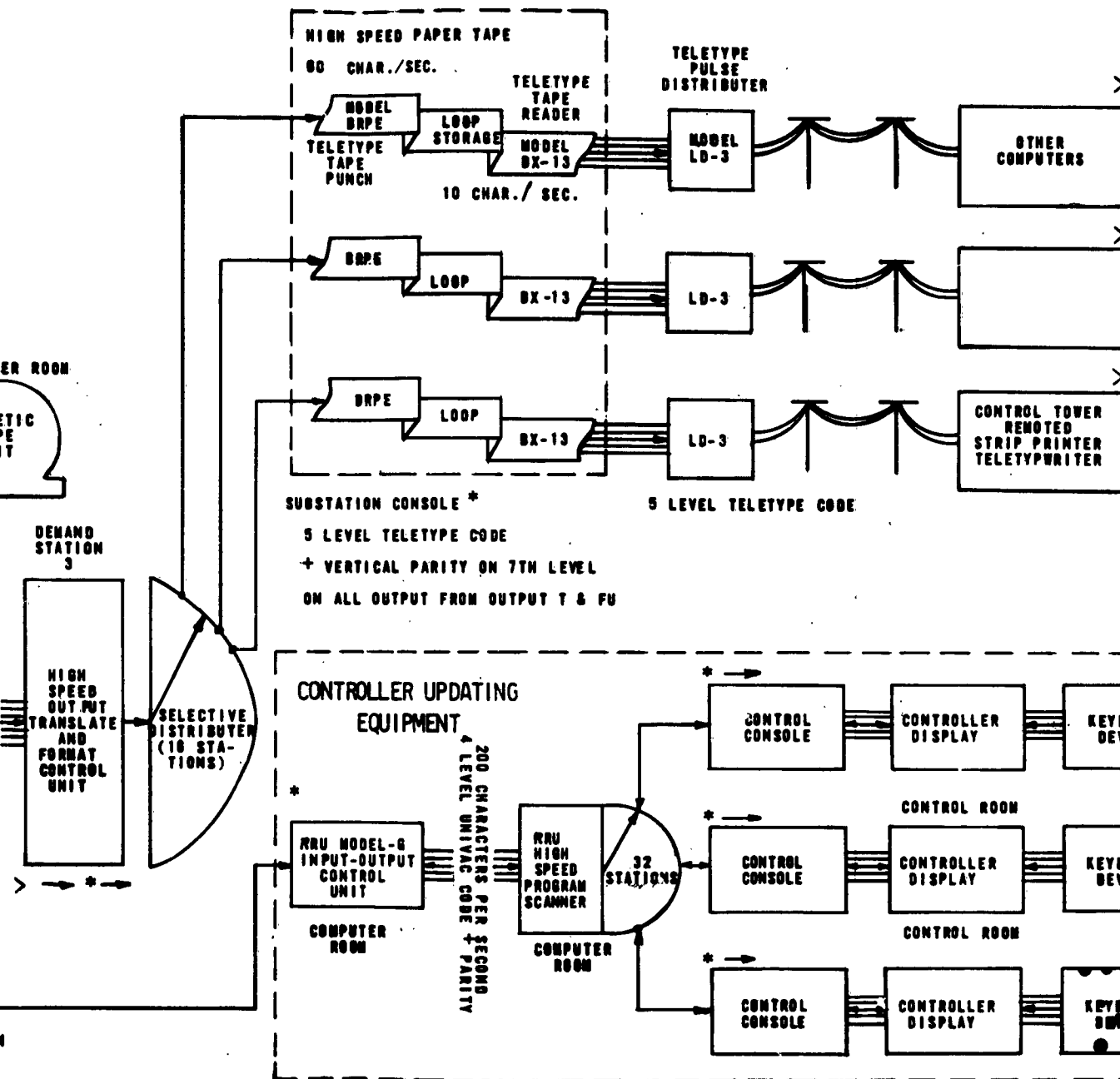
APPENDIX II

SYSTEM DIAGRAM AND GENERAL FLOW CHARTS



AIR TRAFFIC CONTROL COMPUTER ON-LINE SYSTEM FOR PHASE 1 OPERATION





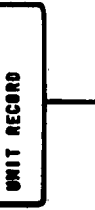
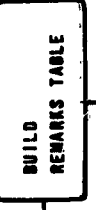
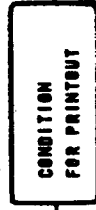
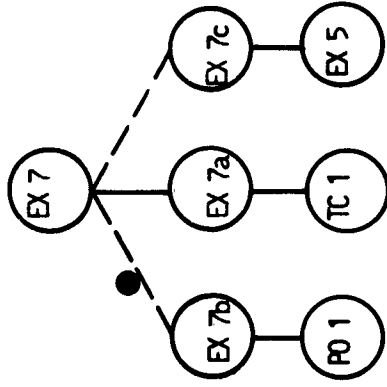
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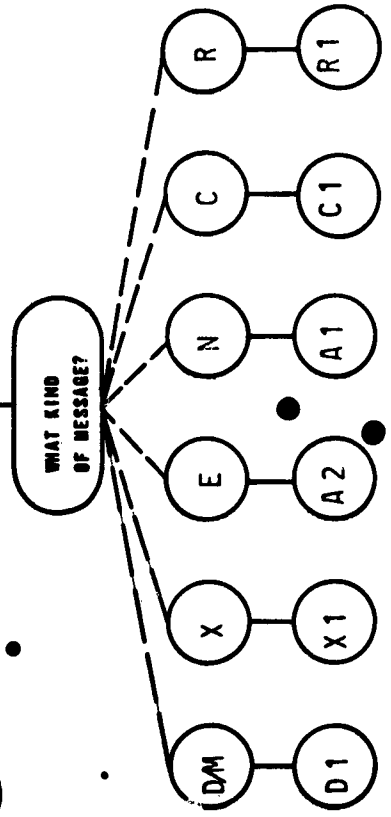
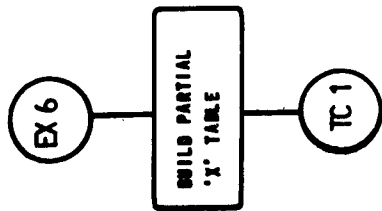
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1. HORIZONTAL PARITY INPUT —> —>
2. HORIZONTAL PARITY POINT —>
3. VERTICAL PARITY INPUT —* —>
4. VERTICAL PARITY POINT —*

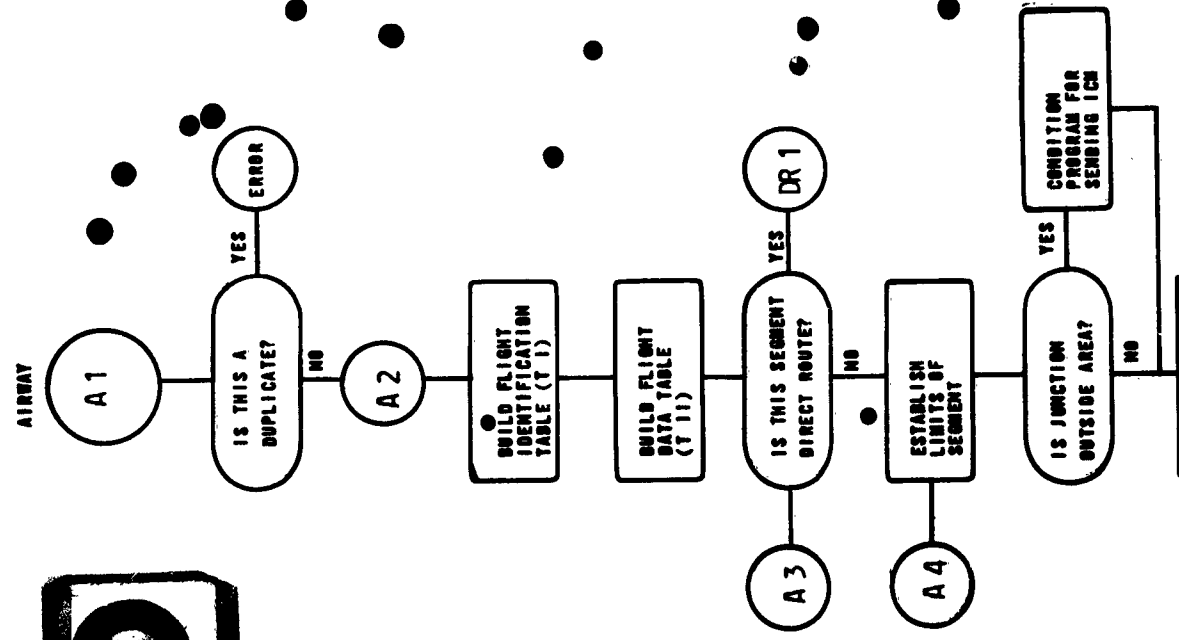
GENERAL FLOW CHART

EXECUTIVE

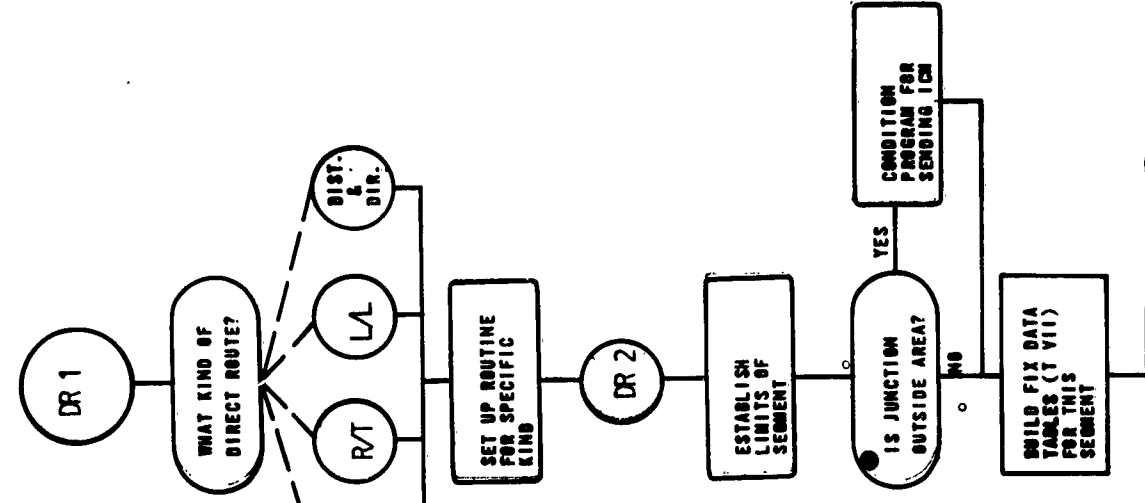


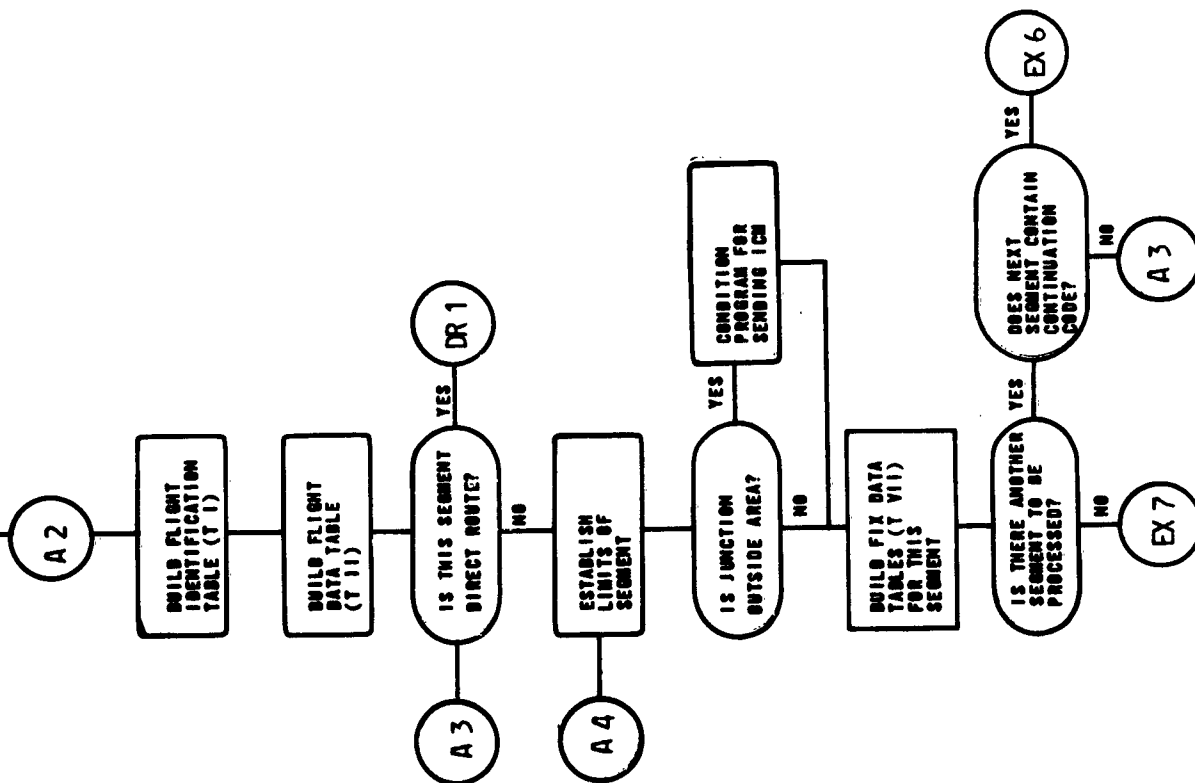
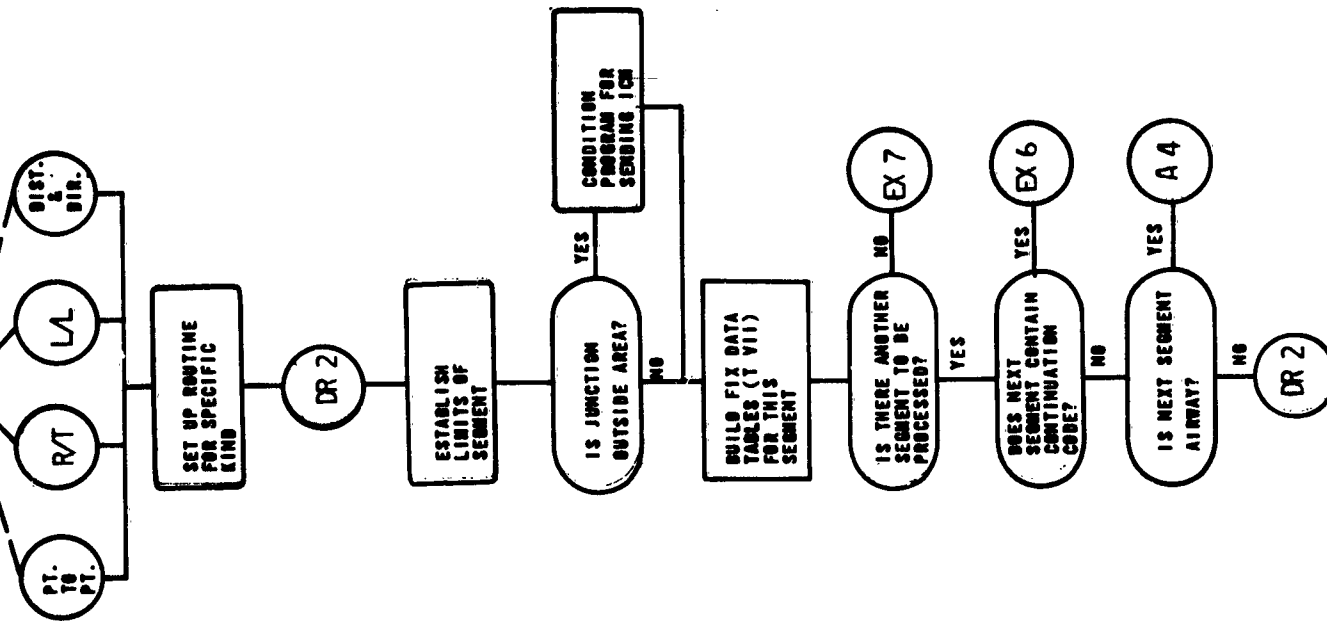


AIRWAY



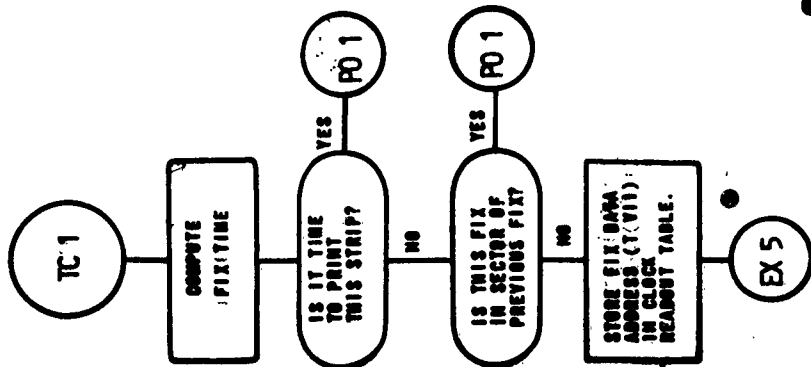
DIRECT



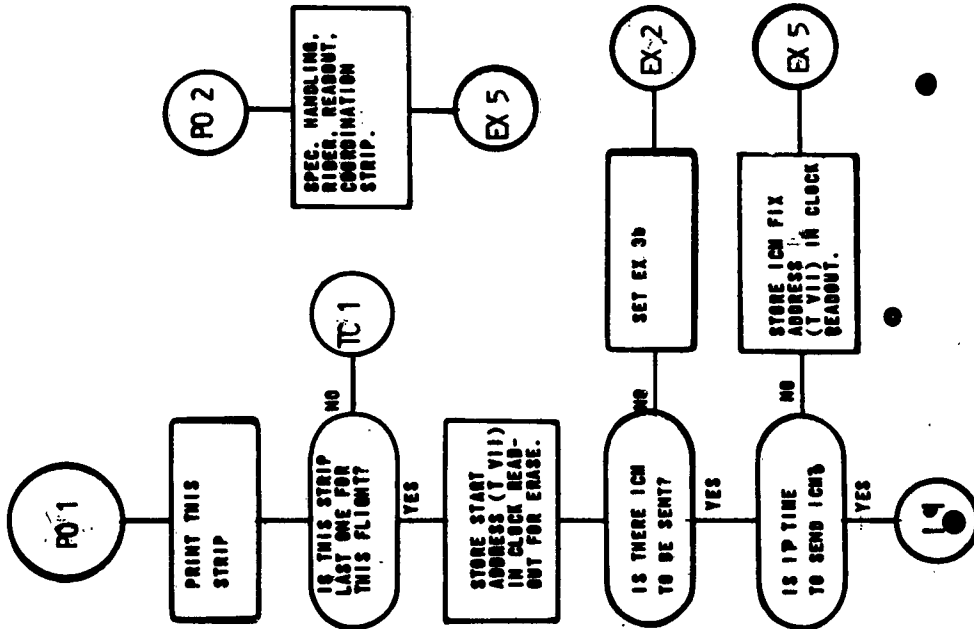




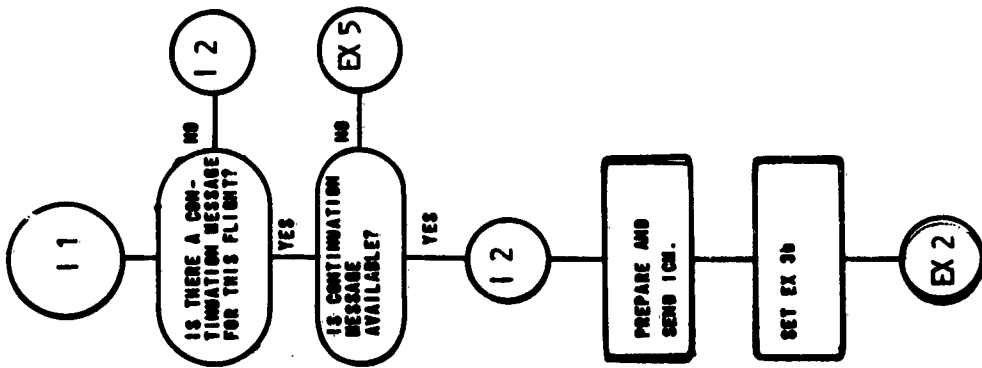
TIME COMPUTATION



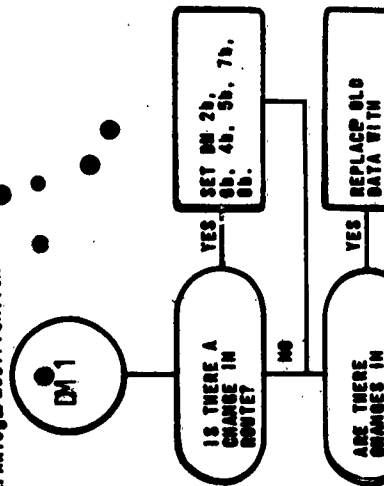
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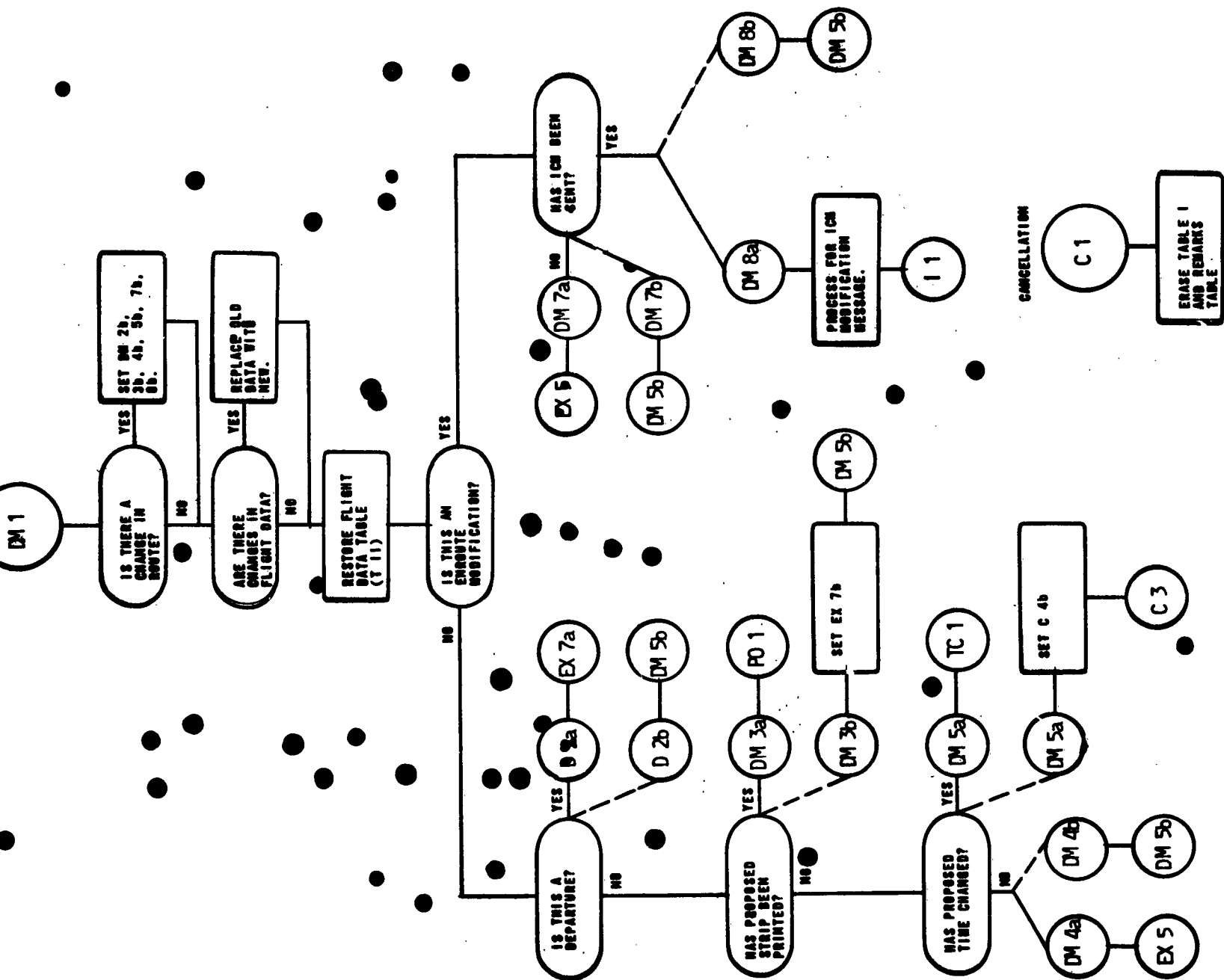


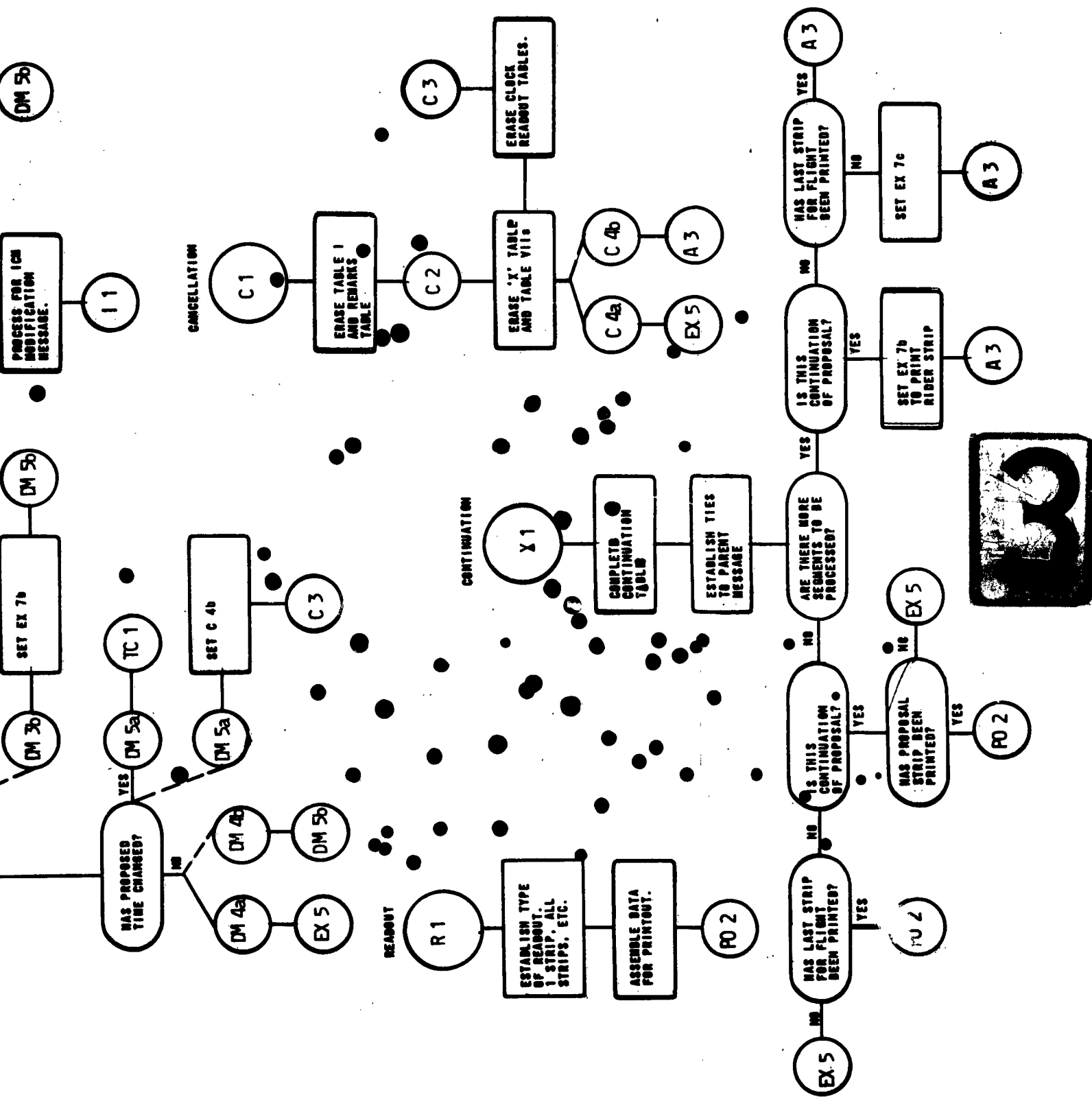
INTERCENTER MESSAGE



DEPARTURE/MODIFICATION



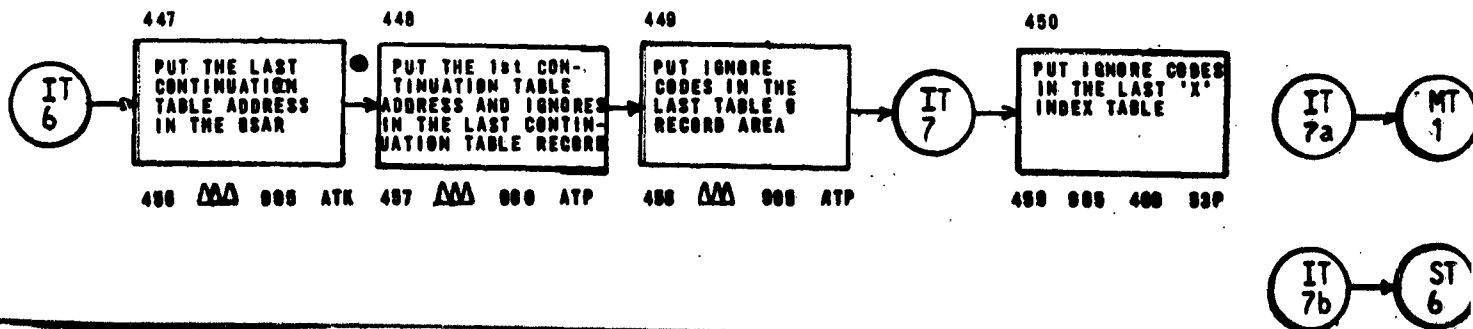
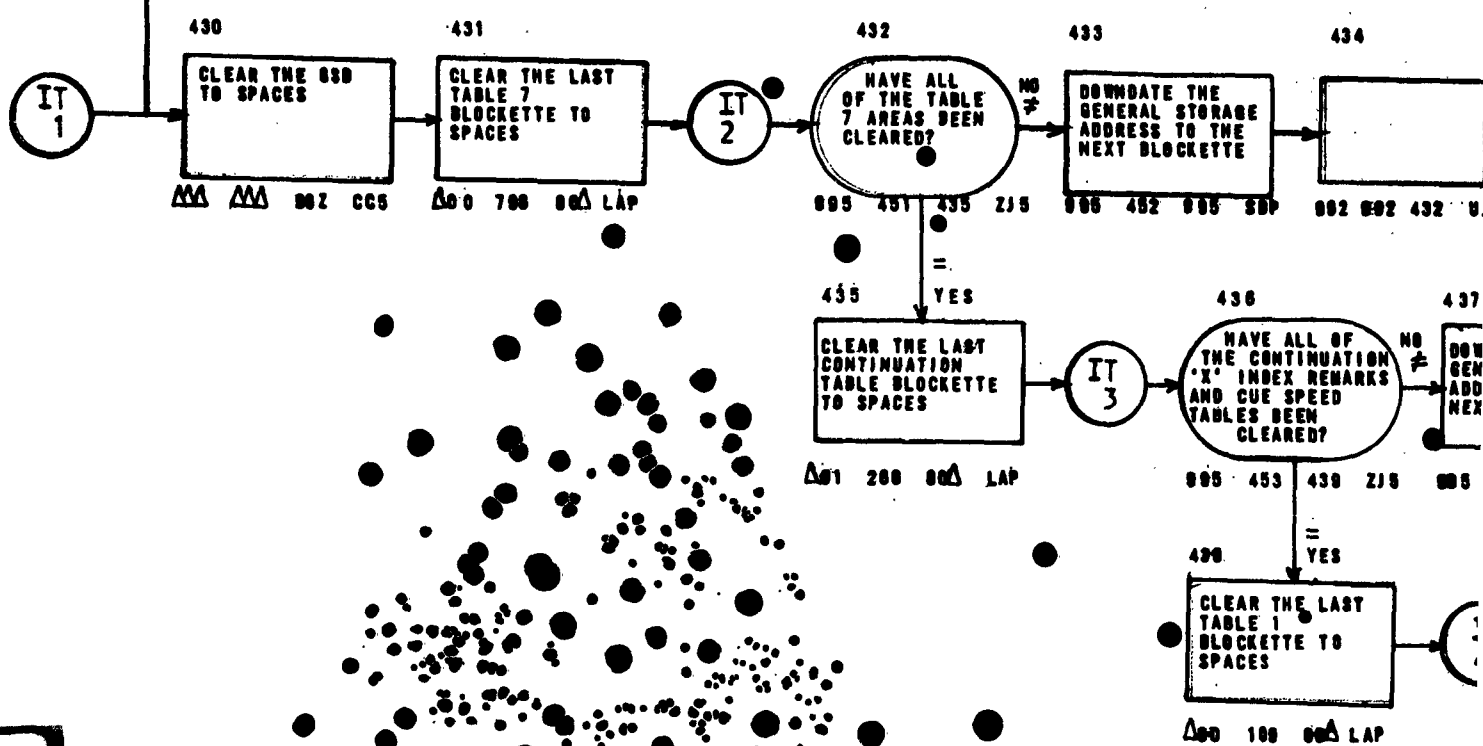




APPENDIX III

STARTING ROUTINE

LABEL AND
GENERAL
STORAGE
PARAMETERS
OR 00Z



DATE THE
RAL STORAGE
ESS TO THE
BLOCKETTE

434



IT 2

432 885 889 882 882 432 U19

STEP 005 TYPED
ON TYPEWRITER
FOLLOWING
THE LABEL

005

000



PUT THIS
BLOCKETTE ON
HIGH SPEED DRU

130 140 885 790 882 122 1

START FROM HERE IF A DUMP TO MAGNETIC
TAPE IS DESIRED AT A TIME OTHER THAN
AFTER THE END OF A NORMAL RUN OF
THE MASTER OPERATIONAL PROGRAM

436

437

438

HAVE ALL OF
THE CONTINUATION
INDEX REMARKS
AND CUE SPEED
TABLES BEEN
CLEARED?

DOWNDATE THE
GENERAL STORAGE
ADDRESS TO THE
NEXT BLOCKETTE

IT 3

885 453 438 215 885 452 885 889 882 882 438 U19

= YES

CLEAR THE LAST
TABLE 1
BLOCKETTE TO
SPACES

IT 4

HAVE ALL OF
THE TABLE 1
AREAS BEEN
CLEARED?

DOWNDATE THE
GENERAL STORAGE
ADDRESS TO THE
NEXT BLOCKETTE

IT 4

400 100 885 LAP

885 454 443 215 885 452 885 889 882 882 448 U19

= YES

CLEAR THE LAST
CUE MESSAGE
TABLE BLOCKETTE
TO SPACES

IT 5

HAVE ALL OF
THE CUE MESSAGE
AND CUE ALERT
TABLES BEEN
CLEARED?

DOWNDATE THE
GENERAL STORAGE
ADDRESS TO THE
NEXT BLOCKETTE

IT 5

400 348 885 LAP

885 455 447 215 885 452 885 889 882 882 444 U19

= YES

IT 6

ORE CODES
LAST 'X'
ABLE

IT 7a

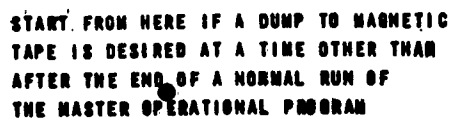
MT 1



IT 7b

ST 6

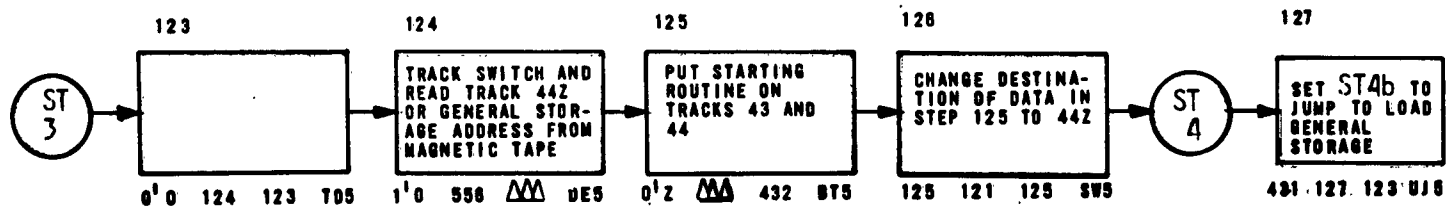
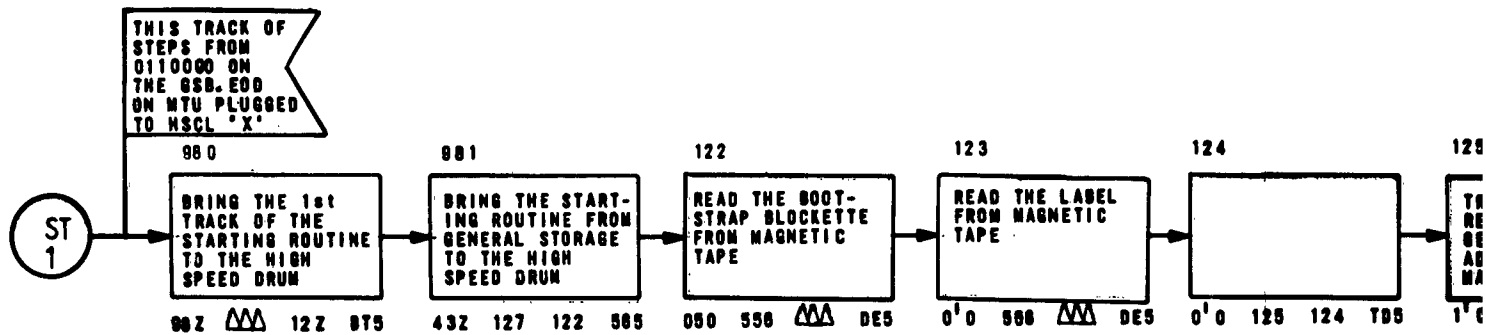
RETURN TO THE
STARTING ROUTINE
AFTER CLEARING
THE TABLES



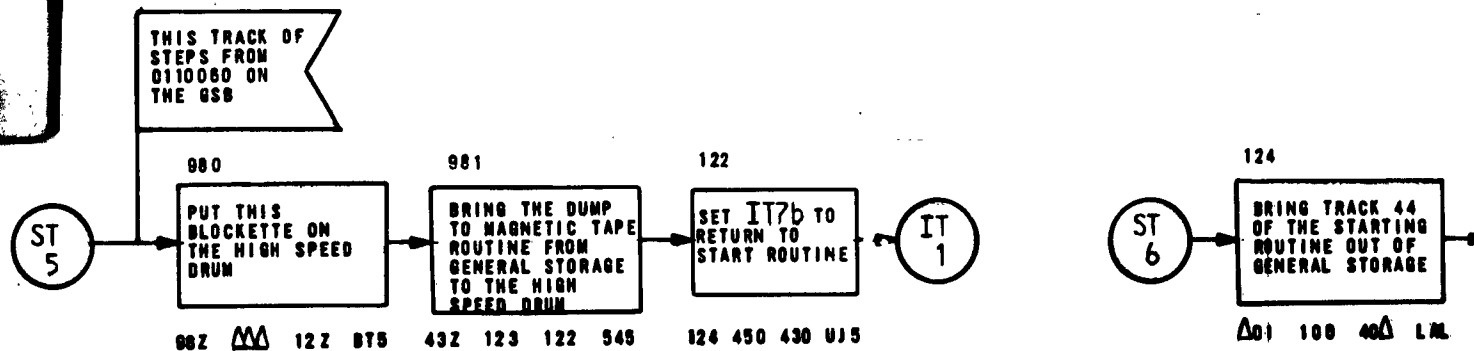
002 - 122 - 492 Δ0.1 300.00Δ
005 - 120 - ΔΔΔ ΔΔΔ ΔΔΔ Δ1Δ
006 - 120 - ΔΔΔ ΔΔΔ ΔΔΔ Δ2Δ

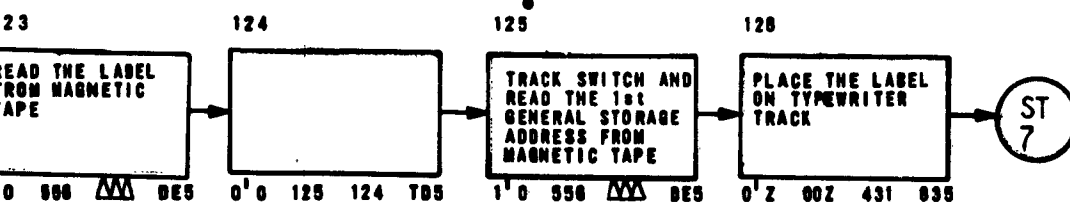


Appendix III
Page 1 of 4



1

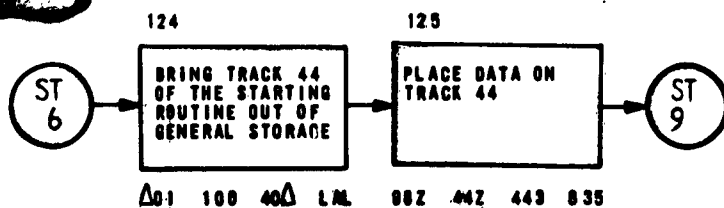
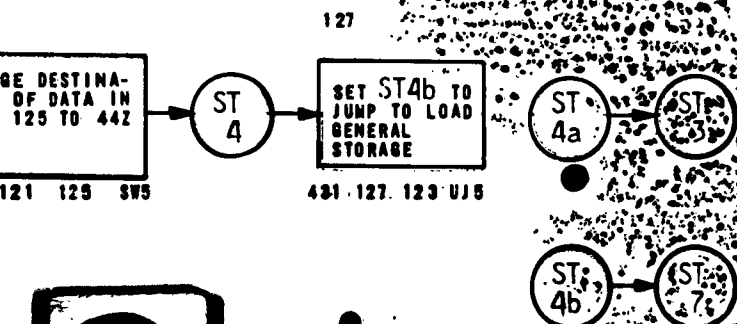




A START FROM ST1 IS THE NORMAL ST1 WHEN A RELOAD OF GENERAL STORAGE AT MAGNETIC TAPE IS DESIRED AND THIS ROUTINE IS IN GENERAL STORAGE.



A START FROM ST2 IS MADE WHEN A R
OF GENERAL STORAGE AREAS FROM MAGNE
IS DESIRED AND THE STARTING ROUTINE
IN GENERAL STORAGE.
STEPS 000 THRU 003 MUST BE TYPED ON
SUPERVISOR'S TYPEWRITER O
TRACK SWITCH THE TYPEWRITER TRACK A1
FROM .000



A START FROM ST5 IS MADE WHEN NO RELOAD OF GENERAL STORAGE FROM MAGNETIC TAPE IS DESIRED. THE REQUIRED STORAGE TABLES ARE CLEARED TO SPACES BEFORE STARTING.

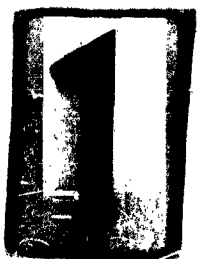
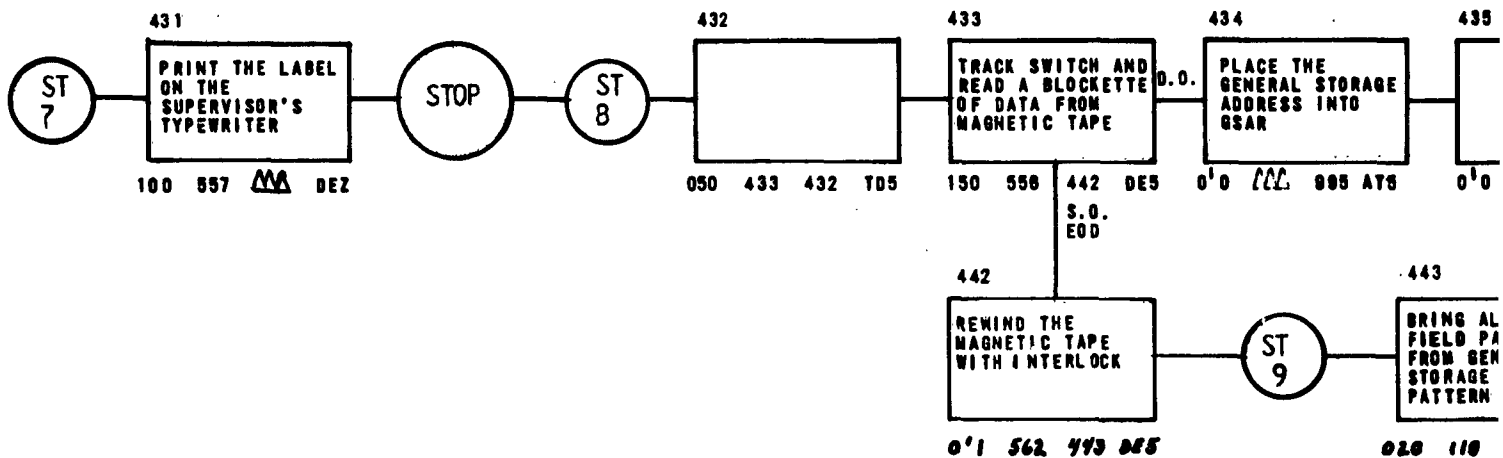
Δφ : 380 00Δ

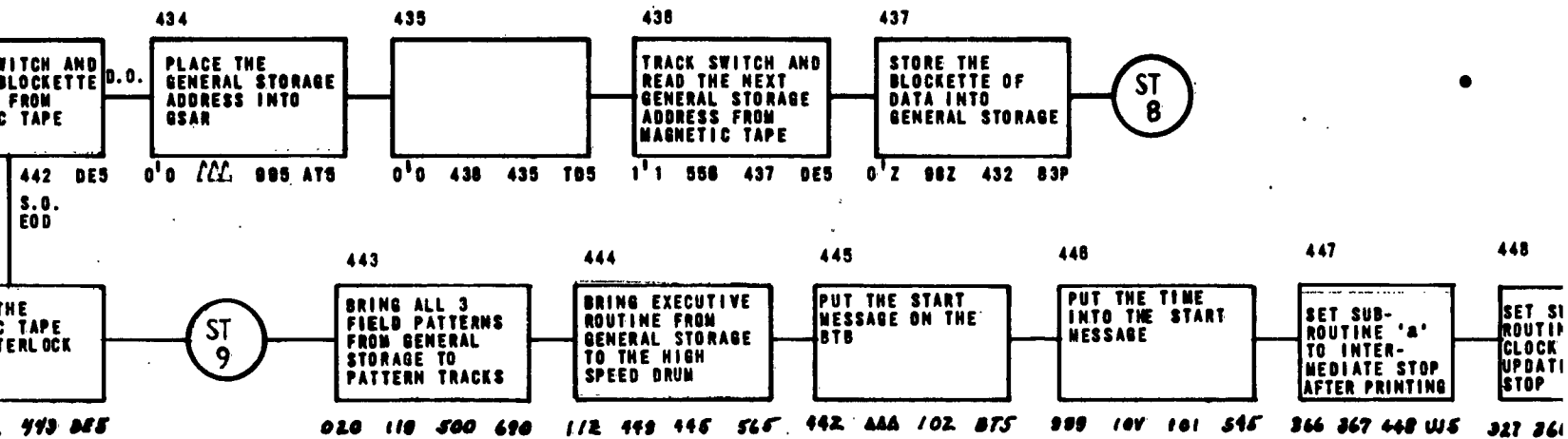
A START FROM ST1 IS THE NORMAL START
WHEN A RELOAD OF GENERAL STORAGE AREAS FROM
MAGNETIC TAPE IS DESIRED AND THIS STARTING
ROUTINE IS IN GENERAL STORAGE.

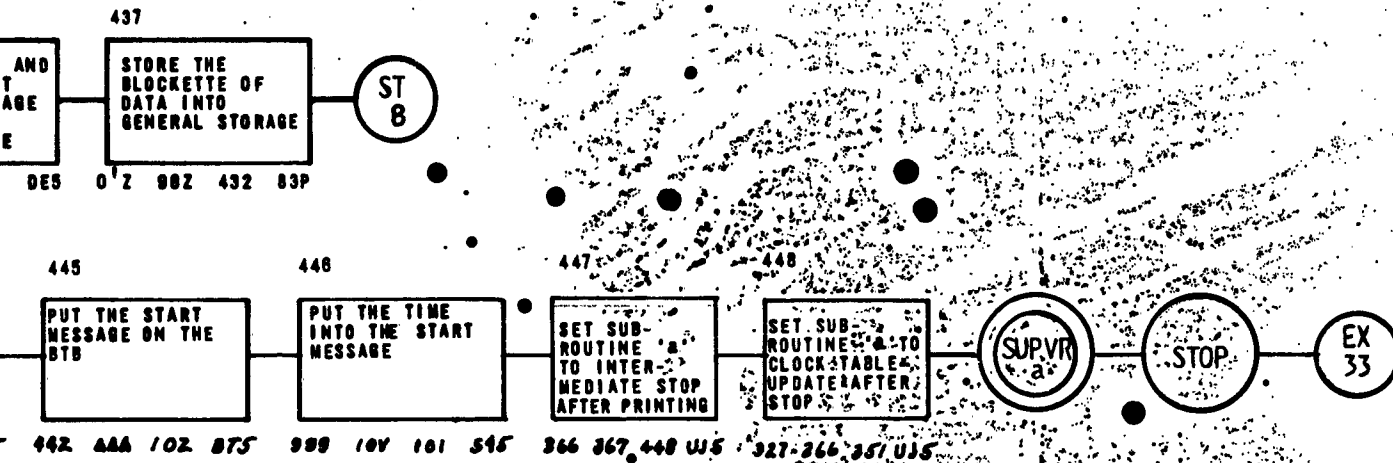
A START FROM ST2 IS MADE WHEN A RELOAD
OF GENERAL STORAGE AREAS FROM MAGNETIC TAPE
IS DESIRED AND THE STARTING ROUTINE IS NOT
IN GENERAL STORAGE.
STEPS 000 THRU 003 MUST BE TYPED ON
SUPERVISOR'S TYPEWRITER O
TRACK SWITCH THE TYPEWRITER TRACK AND START
FROM 000.

A START FROM ST5 IS MADE WHEN
NO RELOAD OF GENERAL STORAGE FROM
MAGNETIC TAPE IS DESIRED. THE
REQUIRED STORAGE TABLES ARE
CLEARED TO SPACES BEFORE STARTING.









127	4	4	Z	Δ	0	1	1	0	0	2	0	Δ	STARTING ROUTINE LOAD FACTOR
440	Δ	Δ	Δ	Δ	t	D	A	T	E	r	r	/	START MESSAGE CONSTANTS
441	S	Δ	T	Δ	A	Δ	R	Δ	T	r	r	|	FOR THE SUPERVISOR'S MESSAGE
449	3	9	Z	Δ	0	1	1	0	3	8	0	Δ	EXECUTIVE ROUTINE LOAD FACTOR
452													
458													
459													

451 & 453 thru 457, etc.

THE ADDRESS OF THE FIRST BLOCKETTE
OF THE TABLE AREA

[illegible]

APPENDIX IV

EXECUTIVE ROUTINE

HIGH SPEED DRUM

B

BLOCK TRANSFER BUFFER

R

GENERAL STORAGE BUFFER

R

FLIGHT

"E" "N" OR "M" KINDS OF MESSAGES

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
WORD 0						A	D	S	R		"E" "N" OR "M"	
1						F	L	T	I	D	N	T
2									T	Y	P	E
3					A	L	T	D	S	P	E	D
4						"E" OR "P"		T	I	M	E	
5												
6												
7	1st	W	O	R	D	R	E	M	A	R	K	S
8	2nd	W	O	R	D	R	E	M	A	R	K	S
9	3rd	W	O	R	D	R	E	M	A	R	K	S

"X" KIND OF MESSAGE

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S	CHARACTER
WORD 0						A	D	S	R		"X"		WORD
1						F	L	T	I	D	N	T	
2									D	P	T	R	
3						
4						
5													
6													
7													
8													
9													

AN "M" KIND OF MESSAGE WILL
CONTAIN TYPE, ALTITUDE, SPEED
AND/OR REMARKS ONLY IF BEING CHANGED.

ROUTE OF FLIGHT, AS RECEIVED AND

"N" OR "M" KINDS OF MESSAGES

"E" OR "M" KINDS OF MESSAGES
(ROUTE NEVER TAILORED & SOME DIRECT ROUTE SEGMENTS)

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
WORD 0	.	.	.	.	.	.	.	.	.	.	.	D
1	P	T	R	1	S	T	A	W	Y		1	J
2	C	T	2	N	D	A	W	Y		2	J	C
3	T	3	R	D	A	W	Y		3	J	C	T
4	4	T	H	A	W	Y		4	J	C	T	S
5	T	H	A	W	Y		5	J	C	T	6	T
6	H	A	W	Y		6	J	C	T	7	T	H
7	A	W	Y		B	E	S	T	.	.	.	.
8	.	.										
9												

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S	CHARACTER
WORD 0	C	F	I	X	.	.	.	.	.	.	.	D	CHARACTER
1	P	T	R	1	S	T	A	W	Y		LAT-		WORD
2	ITUDE	/	LONG	TUDE						2	J	C	
3	T	RHO	-	THETA						3	J	C	T
4	D	.	.	.	.	.				DIST. & DRCYN.	4		
5	J	C	T	.	.	.	5	J	C	T	6	T	
6	H	A	W	Y		6	J	C	T	7	T	H	
7	A	W	Y		B	E	S	T	.	.	.	.
8	.	.											
9													

AN "M" KIND OF MESSAGE WOULD CONTAIN ROUTE ONLY IF THE ROUTE WERE BEING CHANGED.
ANY SEGMENT COULD BE ONE OF THE DIRECT ROUTE SEGMENTS SHOWN.
THE DESTINATION MAY BE IN ANY OF THE JUNCTION POSITIONS SHOWN IN WHICH CASE THE AIRWAY PORTION
THAT SEGMENT WOULD BE DOTS AND THE REMAINDER OF THE ROUTE AREA, SPACES.

FLIGHT DATA, AS RECEIVED AND PUT ON WORKING TRACK 97

MESSAGE

4	3	2	1	S
S	R		"X"	
T	I	D	N	T
	D	P	T	R
.
.

"P" KIND OF MESSAGE

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
WORD 0						A	D	S	R		"P"	
1						F	L	T	I	D	N	T
2												
3												
4						A	L	T	D	A	F	I
5												
6												
7												
8												
9												

"R" KIND OF MESSAGE

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S	CH
WORD 0						A	D	S	R		"R"		
1						F	L	T	I	D	N	T	
2													
3													
4													
5													
6													
7													
8													
9													

"P", "R", OR "C" KINDS OF MESSAGE MAY HAVE BEEN RECEIVED VIA CUE IN WHICH CASE THEY ARE FORMATED AS ABOVE BEFORE ENTERING THE EXECUTIVE ROUTINE.

OF FLIGHT, AS RECEIVED AND PUT ON WORKING TRACK 96

OF MESSAGES

"E" OR "M" KINDS OF MESSAGES

IE DIRECT ROUTE SEGMENTS) (ROUTE TAILORED PREVIOUSLY AND SHORT ROUTE)

"X" KIND OF MESSAGE

4	3	2	1	S
.	.	.	.	D
W	Y		LAT-	
		2	J	C
		3	J	C

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
WORD 0	C	F	I	X	.	.	.	.	.	.	.	D
1	P	T	R	.	.	.	.	.	.	.	.	J
2	C	T	2	T	H	A	W	Y	.	2	J	C
3	T	3	T	H	A	W	Y	.	3	J	C	T
4	4	T	H	A	W	Y	.	4	J	C	T	5
5	T	H	A	W	Y	.	D	E	S	T	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.
7												
8												
9												

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
WORD 0	7	J	C	T	8	T	H	A	W	Y	.	8
1	J	C	T	9	T	H	A	W	Y	0	9	J
2	C	T	1	T	H	A	W	Y	.	1	J	C
3	T	11	T	H	A	W	Y	.	11	J	C	T
4	12	R	H	A	W	Y	.	12	J	C	T	13
5	T	H	A	W	Y	.	13	J	C	T	14	T
6	H	A	W	Y	.	14	J	C	T	15	T	H
7	A	W	Y	.	D	E	S	T	.	.	.	.
8	.	.	.	.	.	.	.	.	.	.	.	.
9												

BEING CHANGED.

CH CASE THE AIRWAY PORTION OF
ES.



"R" KIND OF MESSAGE

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
0						A	D	S	R		"R"	
1						F	L	T	I	D	N	T
2						DIST. & DRCTN.						
3					A	F	I	X
4				
5												
6												
7												
8												
9												

"C" KIND OF MESSAGE

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
WORD 0						A	D	S	R		"C"	
1						F	L	T	I	D	N	T
2									D	P	T	R
3					9	9	9	9
4				
5												
6					T	B	L	7	A	D	R	.
7												
8												
9												



AGE MAY HAVE BEEN RECEIVED
FORMATED AS ABOVE BEFORE

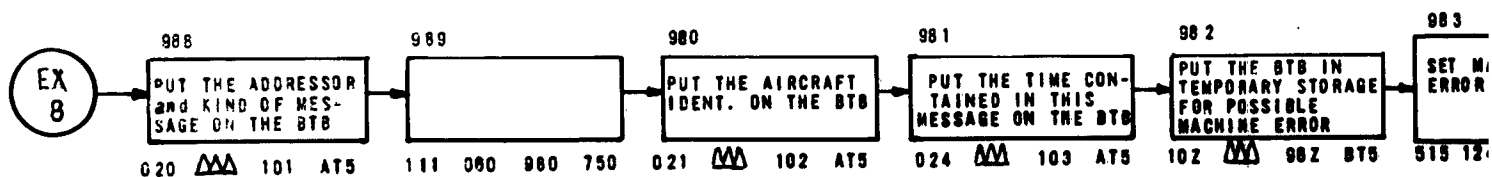
THE TABLE 7 ADDRESS IS INCLUDED
ONLY IF THE MESSAGE WERE RECEIVED
VIA CUE.

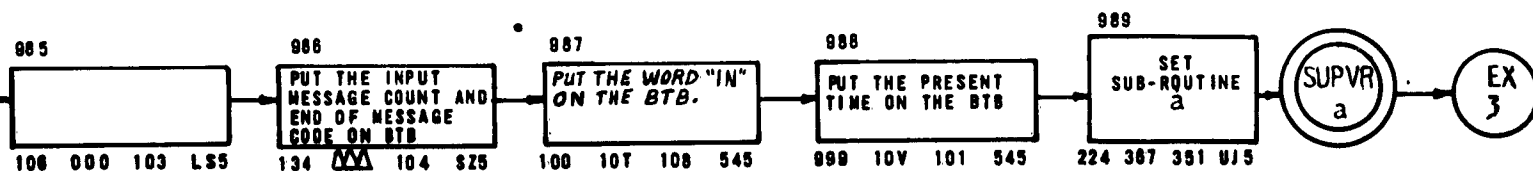
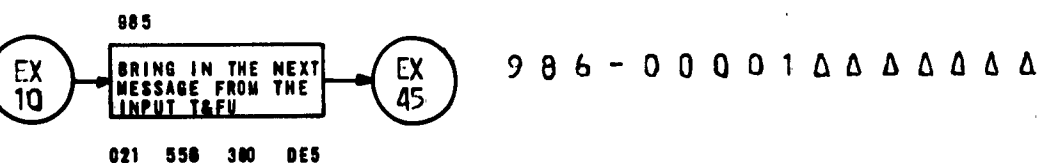
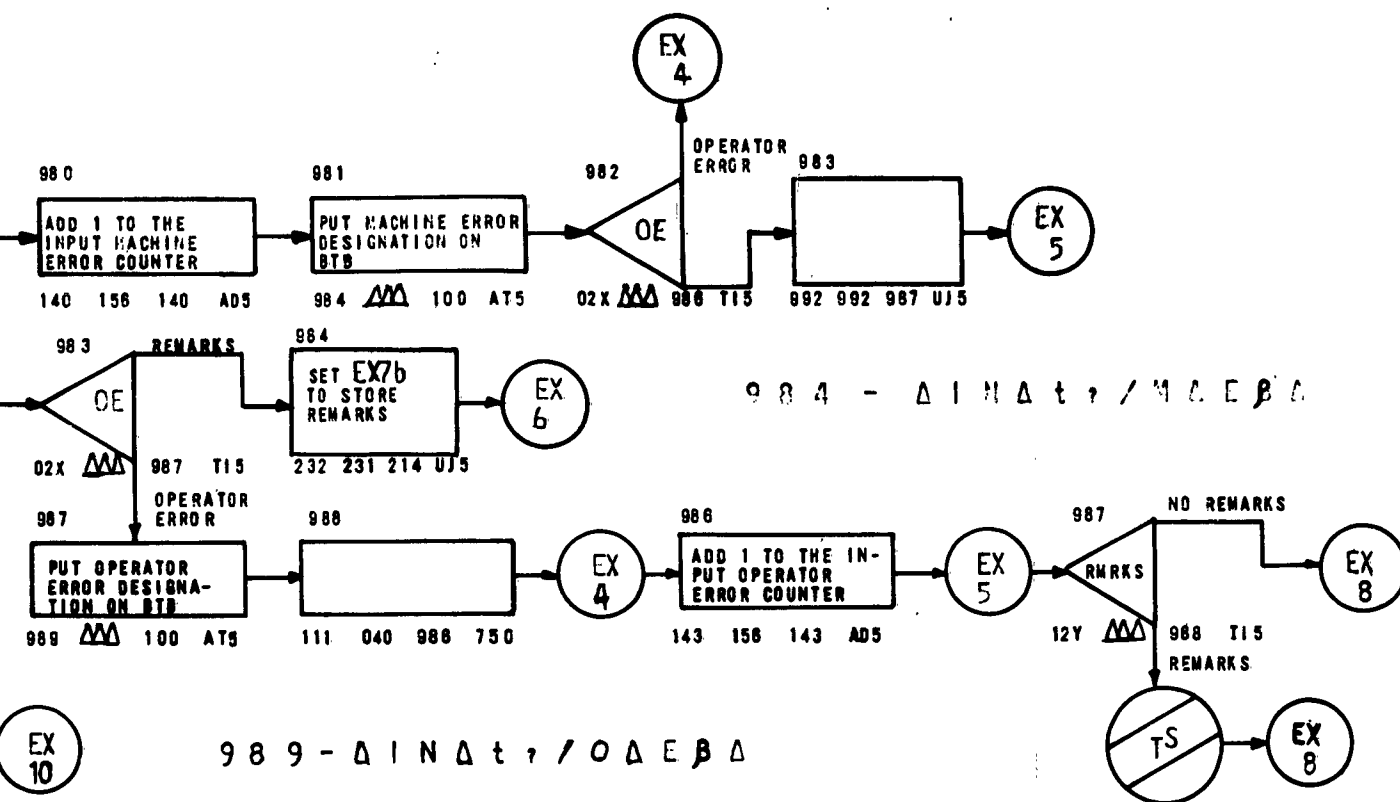
"X" KIND OF MESSAGE

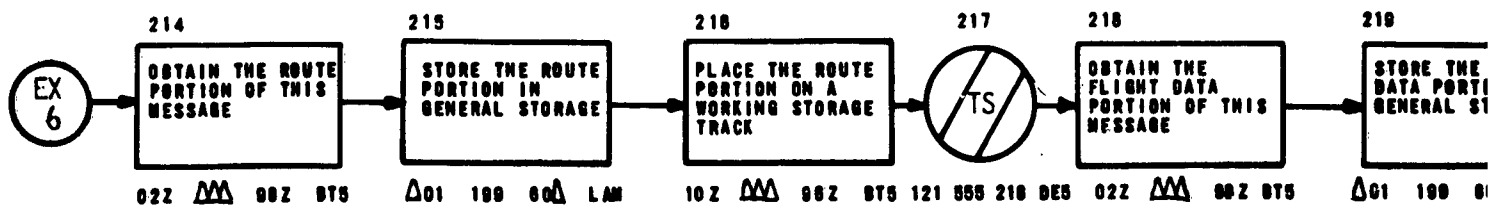
CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
0	7	J	C	T	8	T	H	A	W	Y		8
1	J	C	T	9	T	H	A	W	Y	D	9	J
2	C	T	1	T	H	A	W	Y		1	J	C
3	T	11	T	H	A	W	Y		11	J	C	T
4	12	R	H	A	W	Y		12	J	C	T	13
5	T	H	A	W	Y		13	J	C	T	14	T
6	H	A	W	Y		14	J	C	T	15	T	H
7	A	W	Y		D	E	S	T	.	.	.	.
8	.	.										
9												

- DOTS, PAD CHARACTER.
- A-FIX - A FIX ALONG THE ROUTE OF FLIGHT.
- C-FIX - THE COORDINATION FIX WITHIN THE AREA OF THE CENTER SENDING THE MESSAGE.

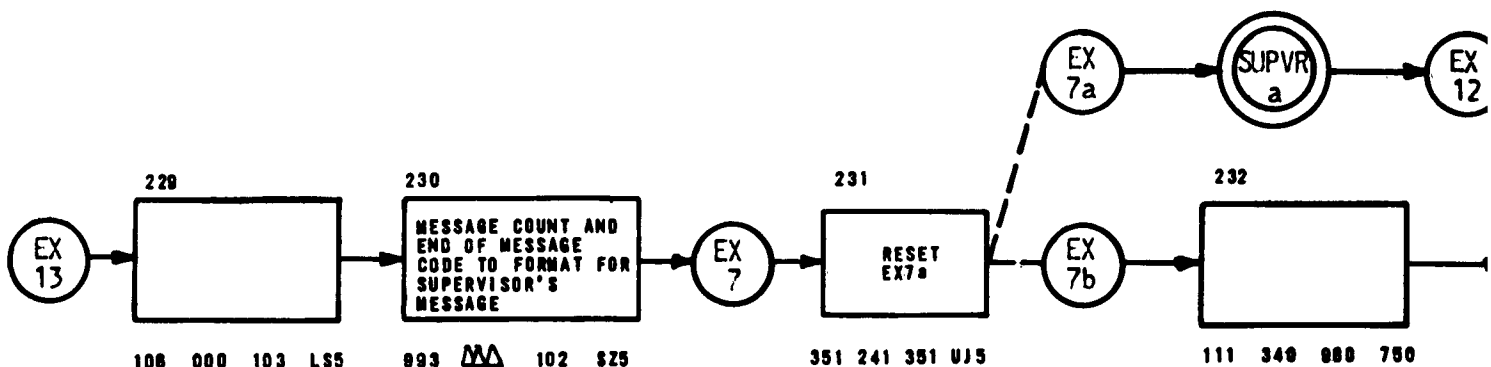
EXECUTIVE ROUTINE
(WORKING TRACKS AS
RECEIVED)



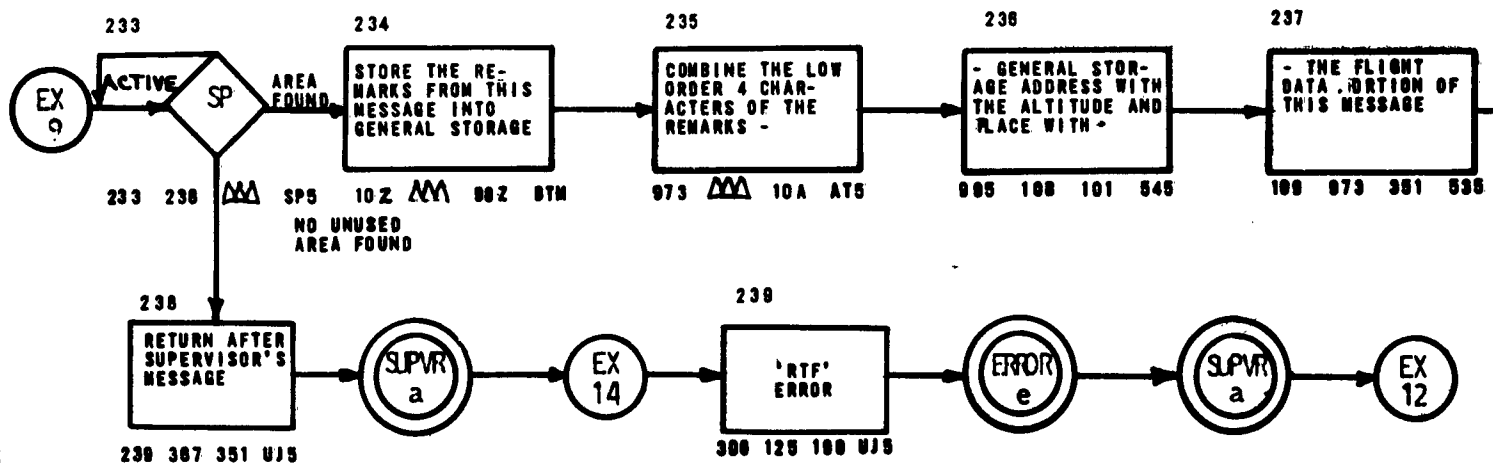




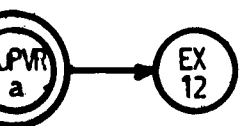
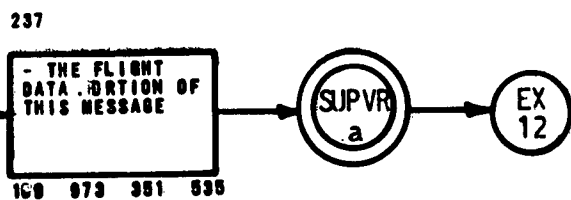
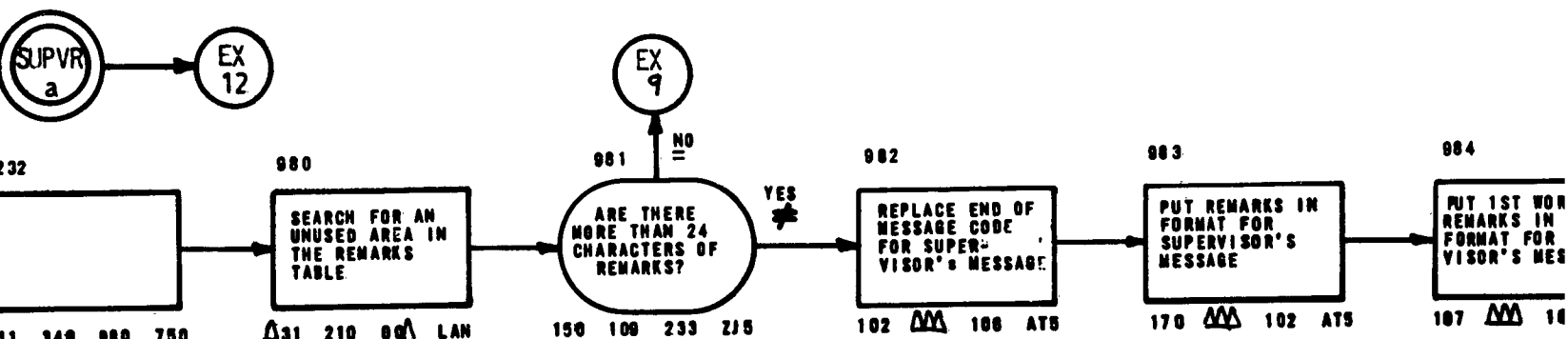
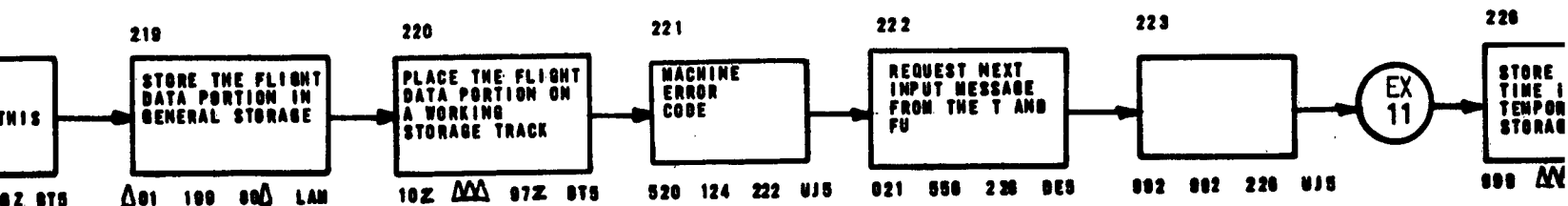
NO REMARKS

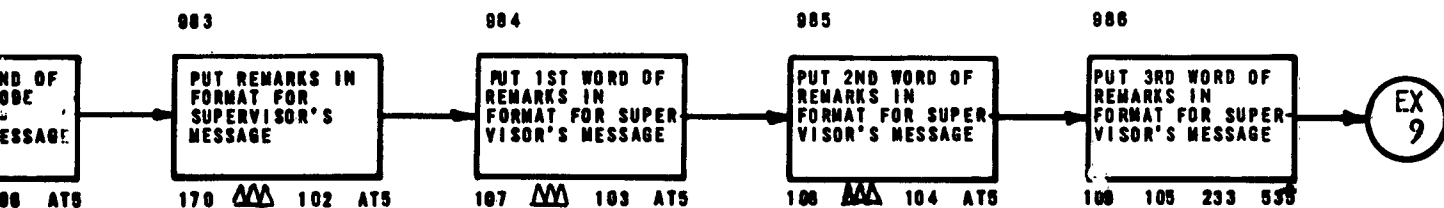
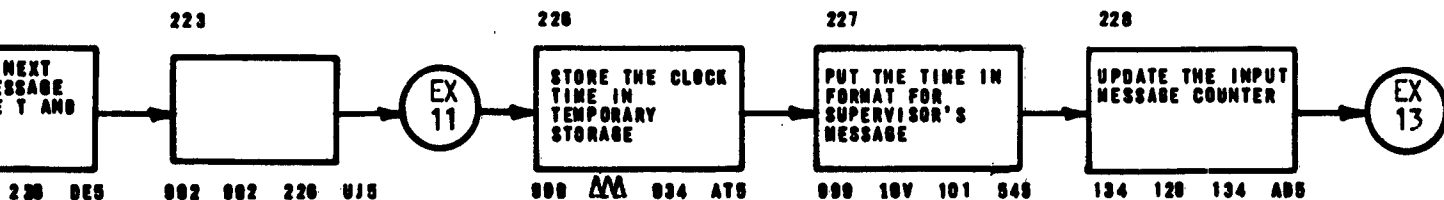


REMARKS



REMARKS TABLE IS FULL



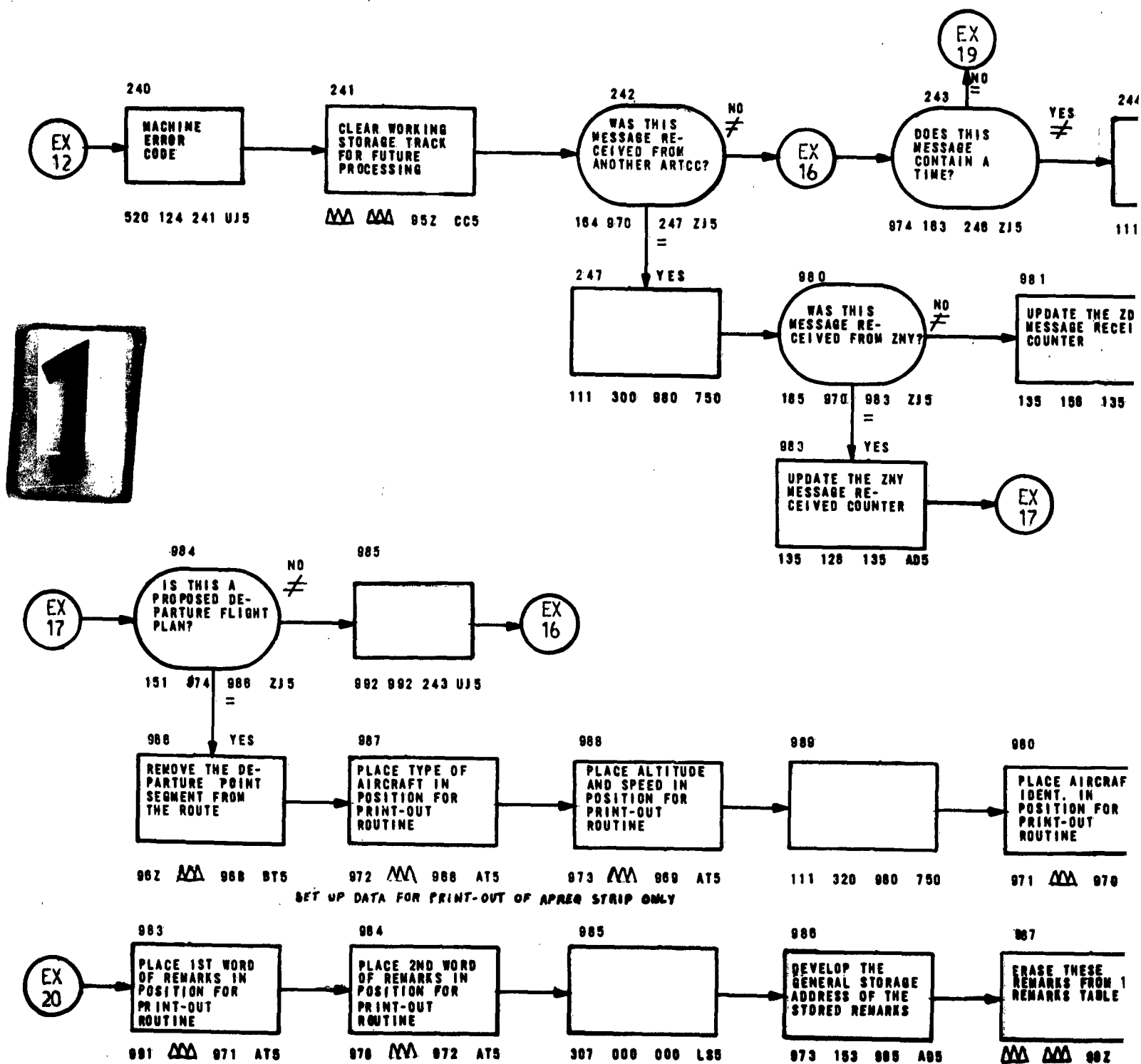


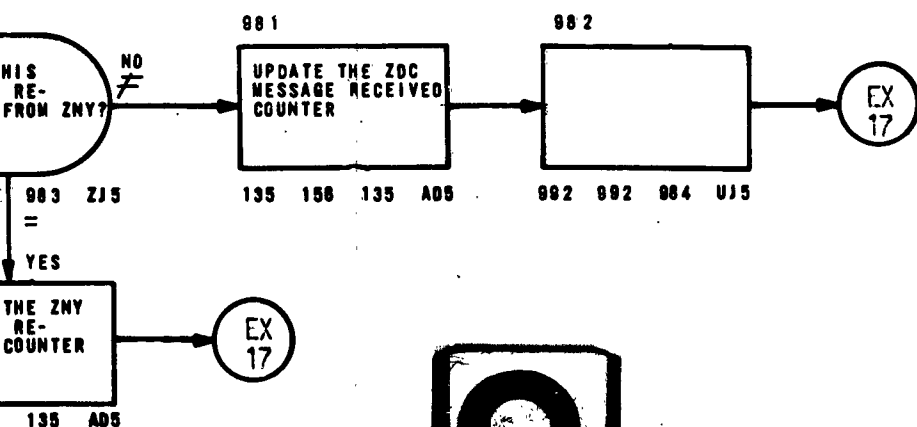
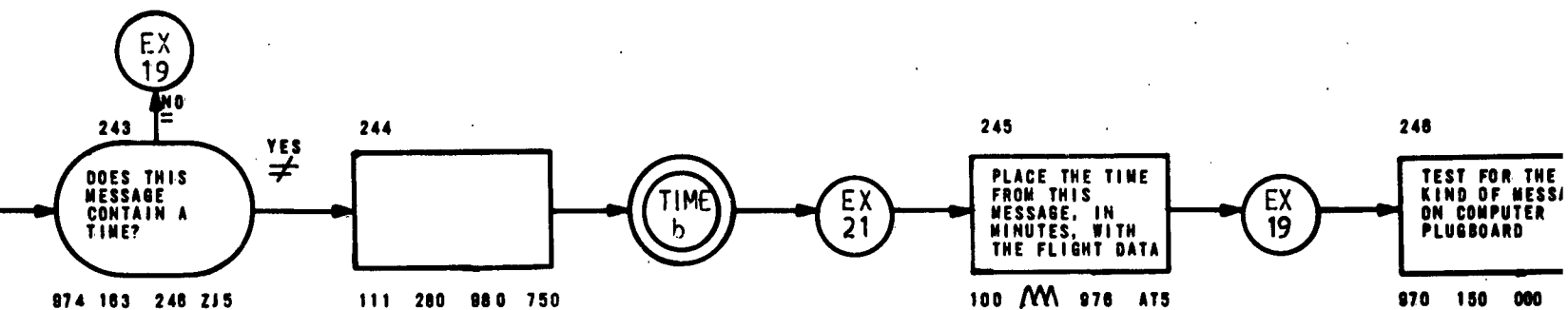
007 ~~AA~~ ~~AA~~ ~~AA~~ ~~AA~~

008 ~~iii~~ ~~iii~~ ~~iii~~ ~~iii~~

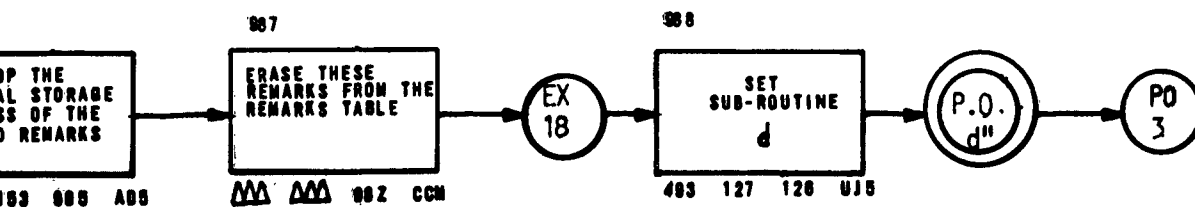
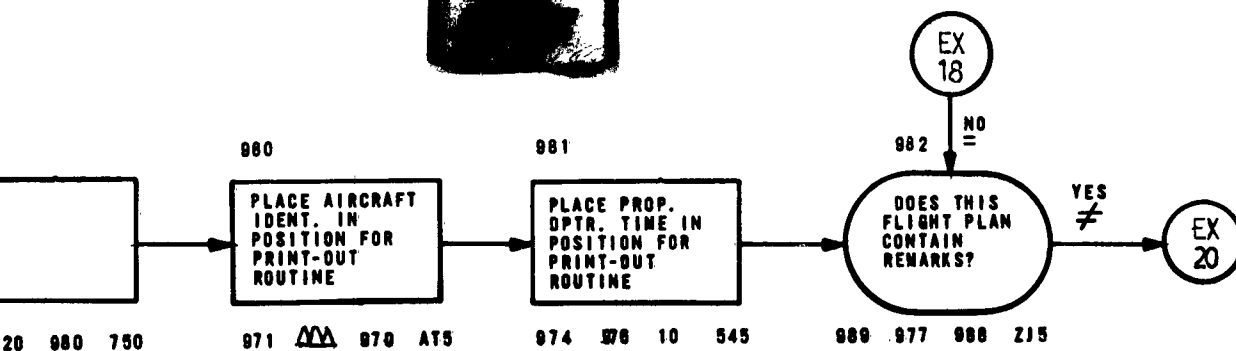
009 ~~iii~~ ~~iii~~ ~~iii~~ ~~iii~~







KIND OF MESSAGE
AS DETERMINED BY
CODE DISTRIBUTOR
REGISTER



THE TIME
HIS
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IGHT DATA

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19

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TEST FOR THE
KIND OF MESSAGE
ON COMPUTER
PLUGBOARD

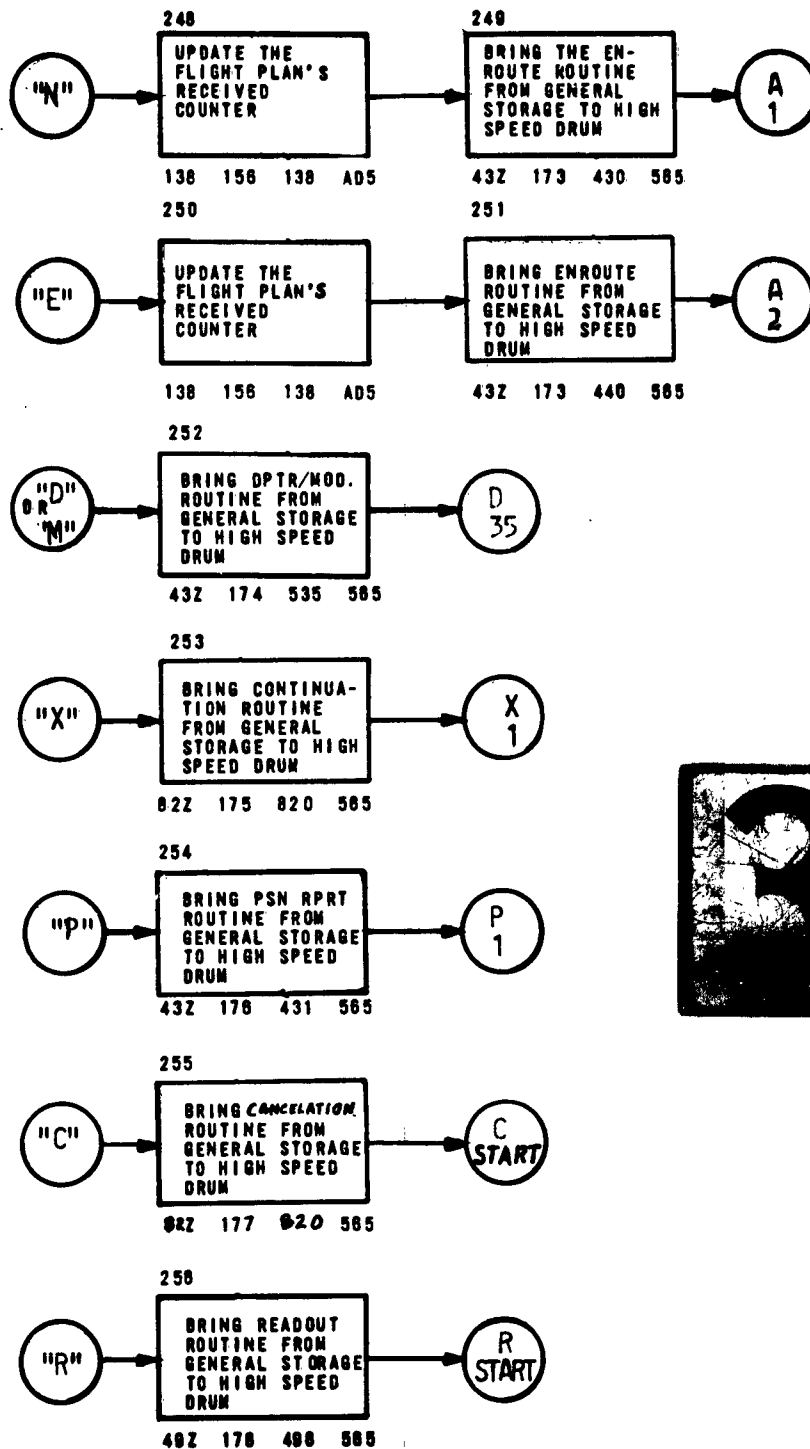
970 150 000 73T

KIND OF MESSAGE
AS DETERMINED BY
CODE DISTRIBUTOR
REGISTER

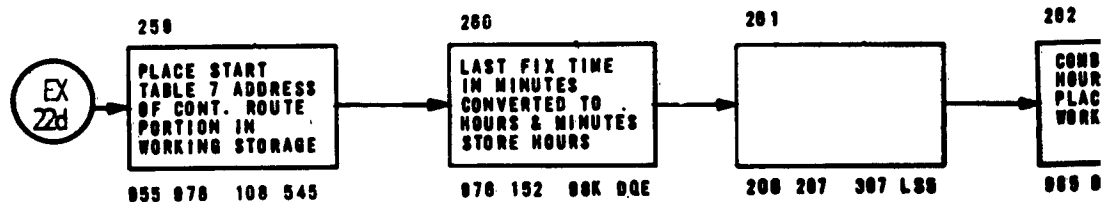
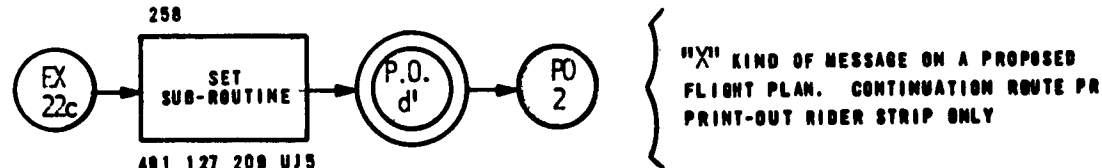
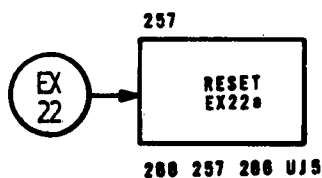
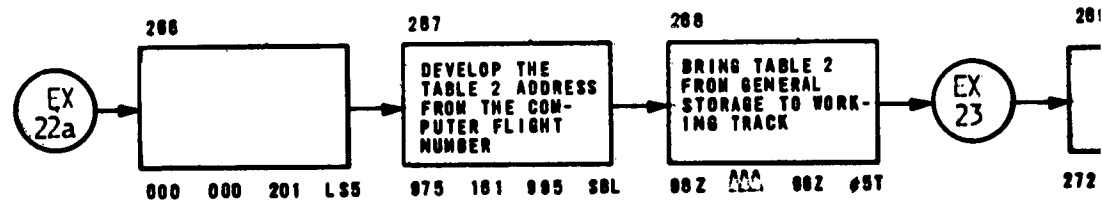
EX
20

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000 - 

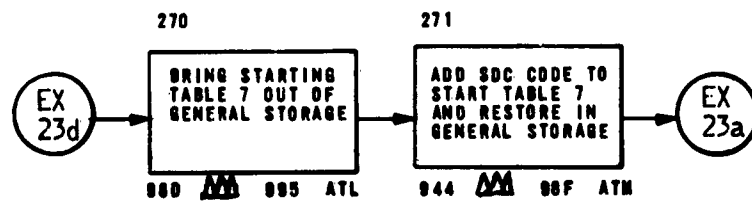
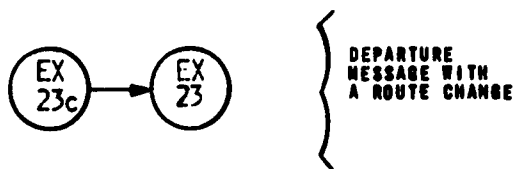
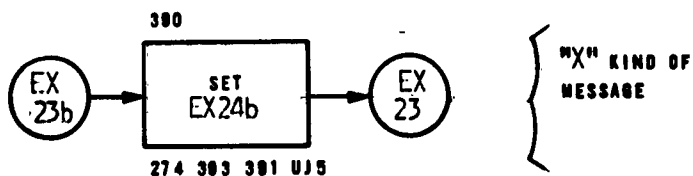
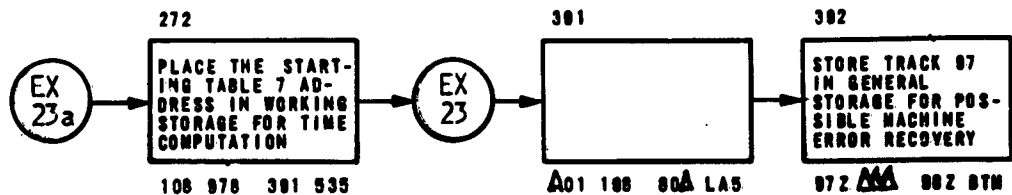
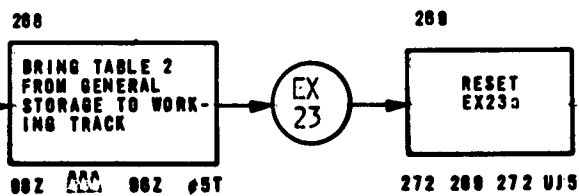


THIS PORTION OF THE EXECUTIVE ROUTINE FOLLOWS THE PROCESSING IN THE AIRWAY, DIRECT AND/OR THE CONTINUATION ROUTINES AND IS ENTERED AT EX22. EX22 AND EX23 ARE SET BY THESE ROUTINES.



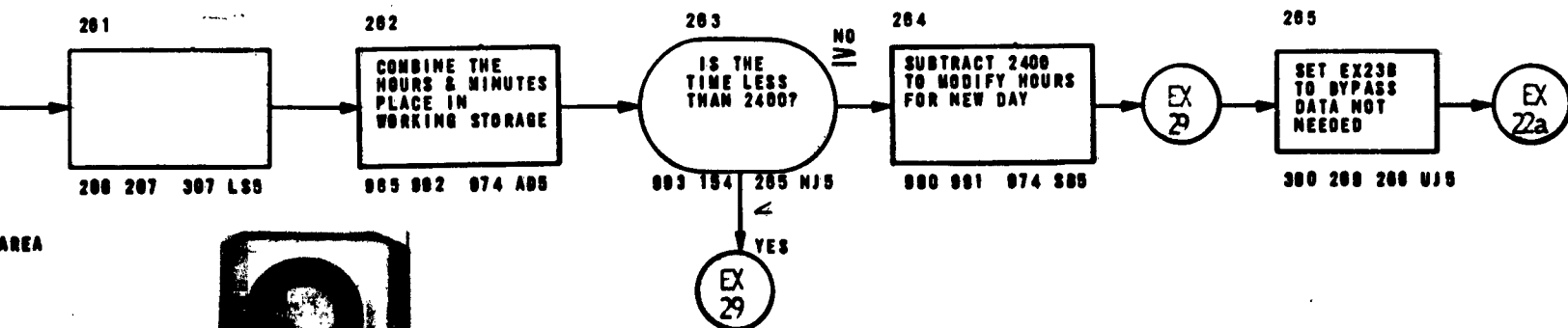
"X" KIND OF MESSAGE WITH MORE ROUTE IN THIS AREA AND ALL PRECEEDING STRIPS PRINTED

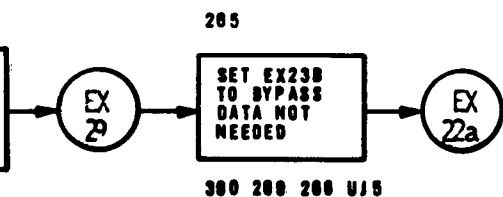
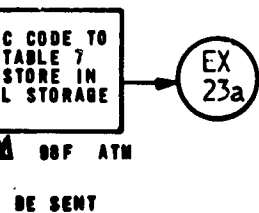
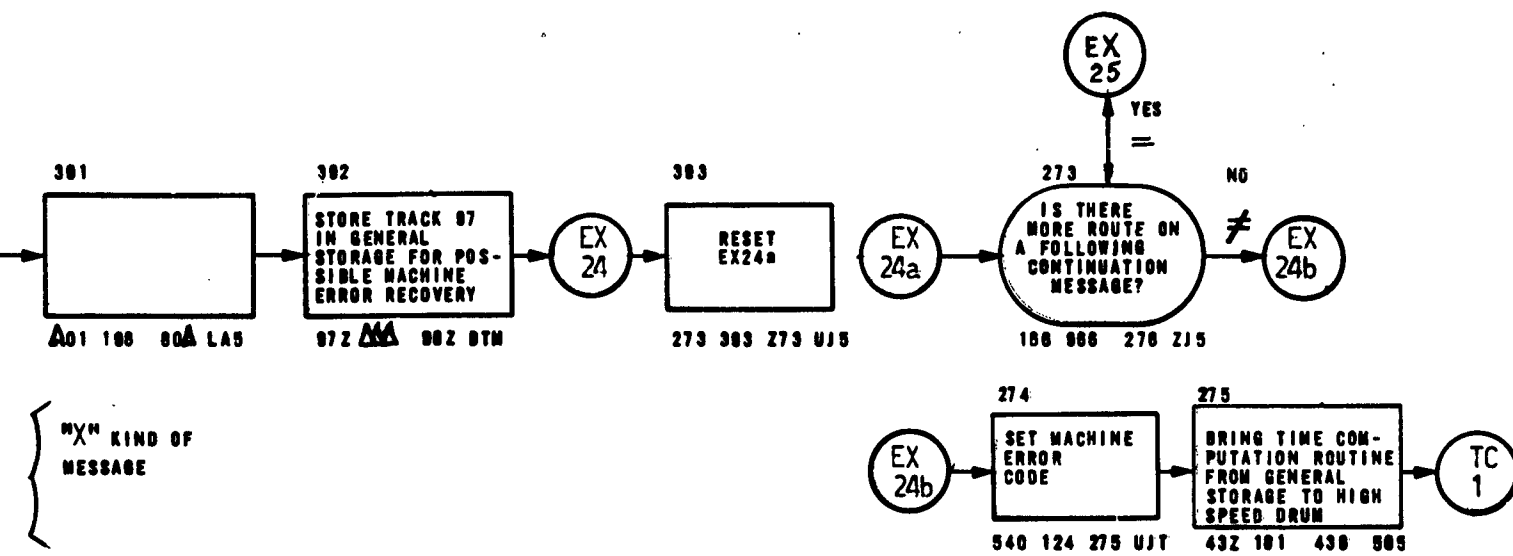
TIVE ROUTINE FOLLOWS THE
 , DIRECT AND/OR THE CONTINUATION
 EX22. EX22 AND EX23 ARE

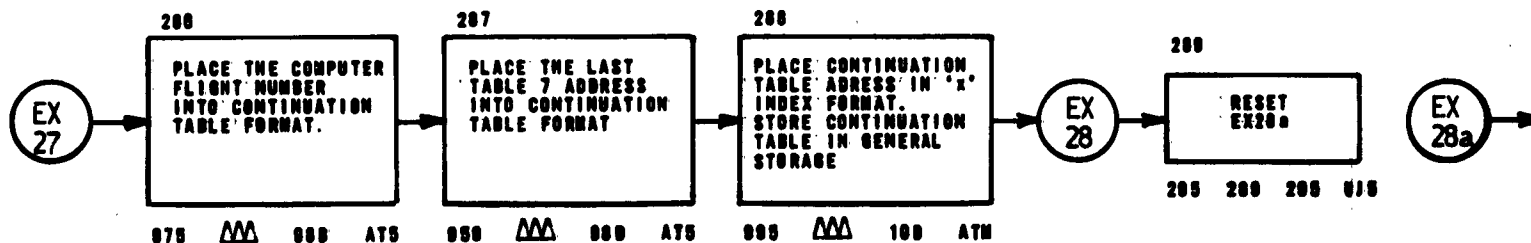
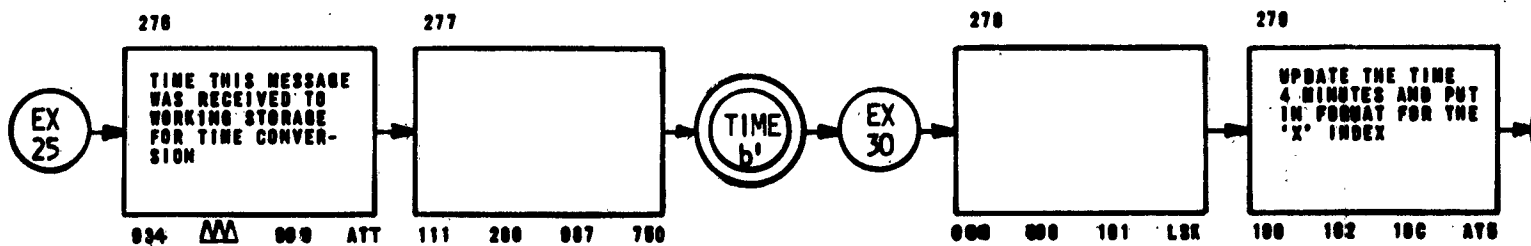


"N" KIND OF MESSAGE WITH ICM TO BE SENT

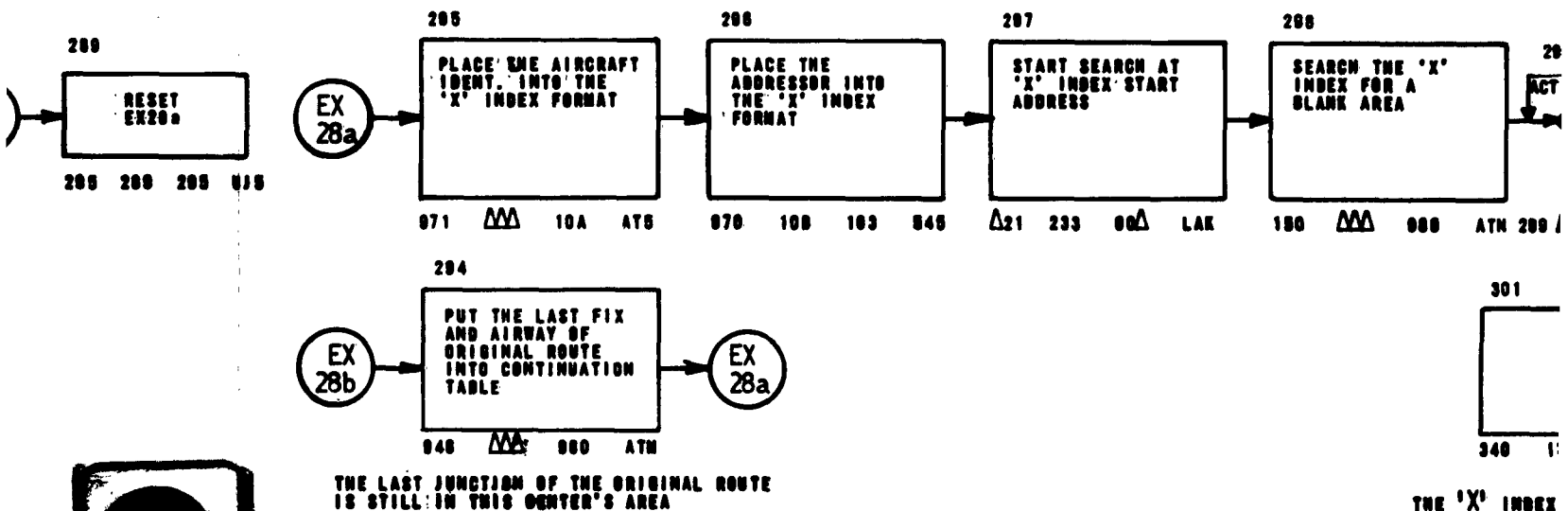
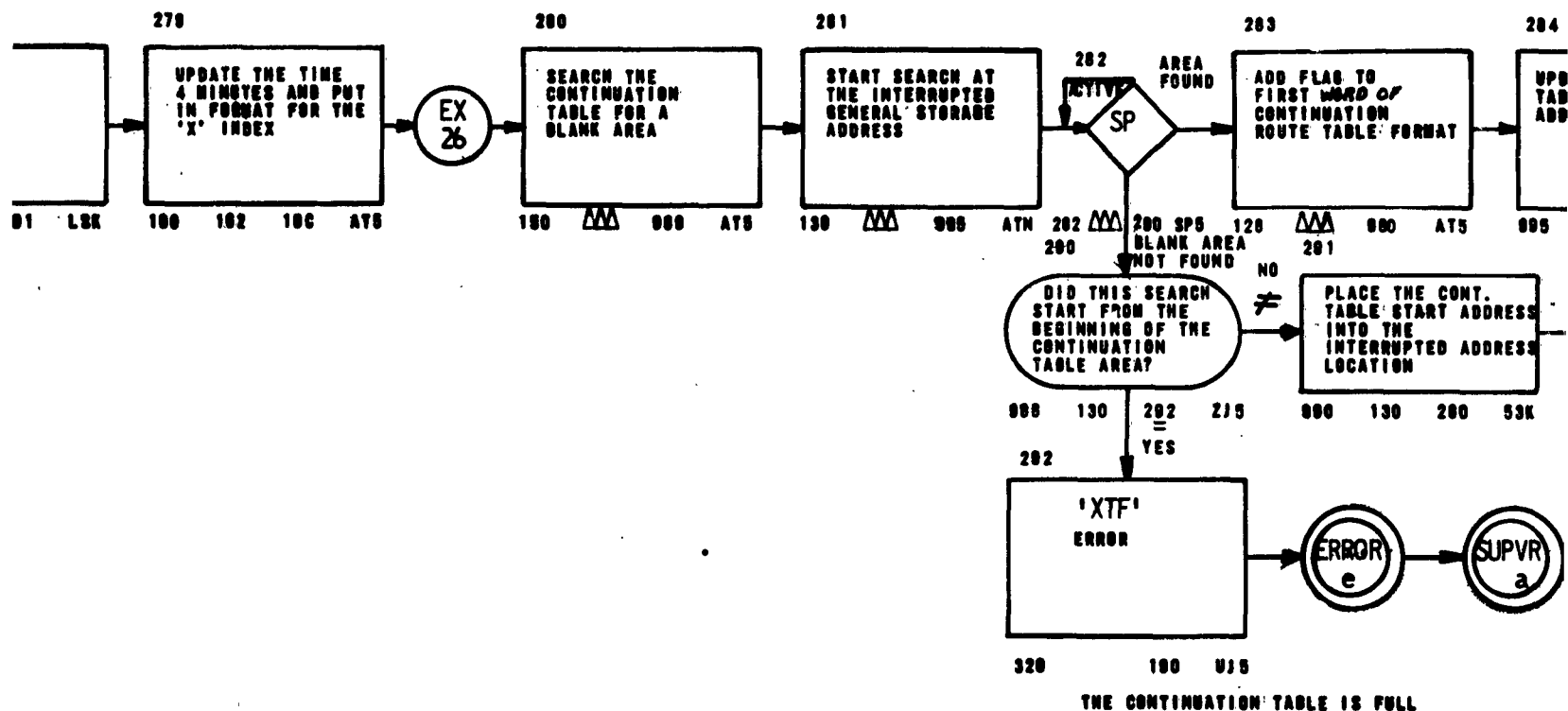
"X" KIND OF MESSAGE ON A PROPOSED
 FLIGHT PLAN. CONTINUATION ROUTE PROCESSED.
 PRINT-OUT RIDER STRIP ONLY

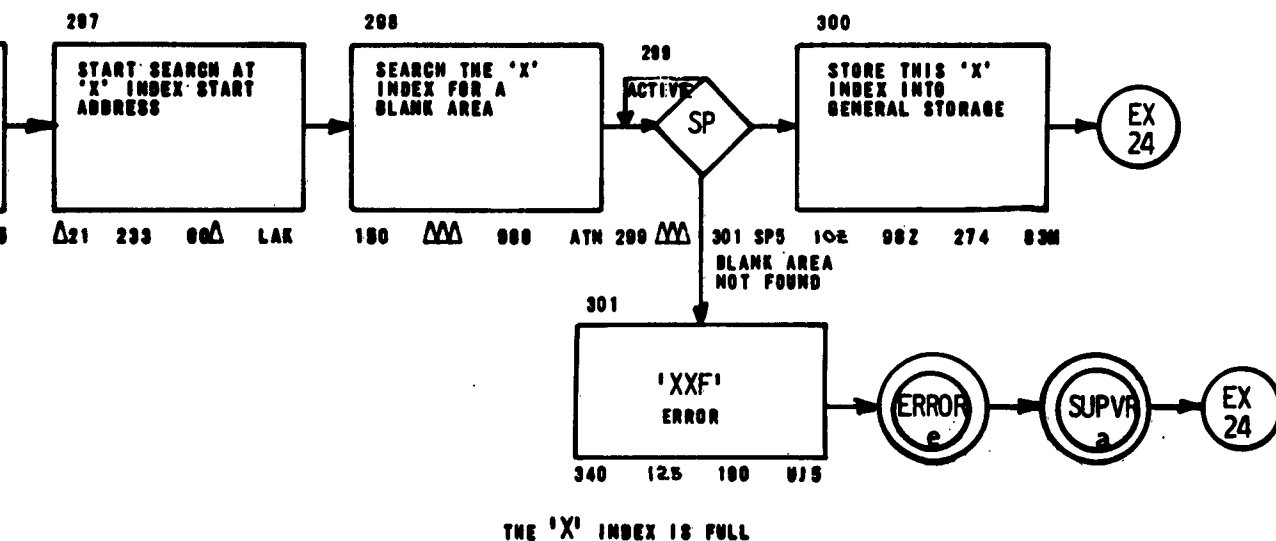
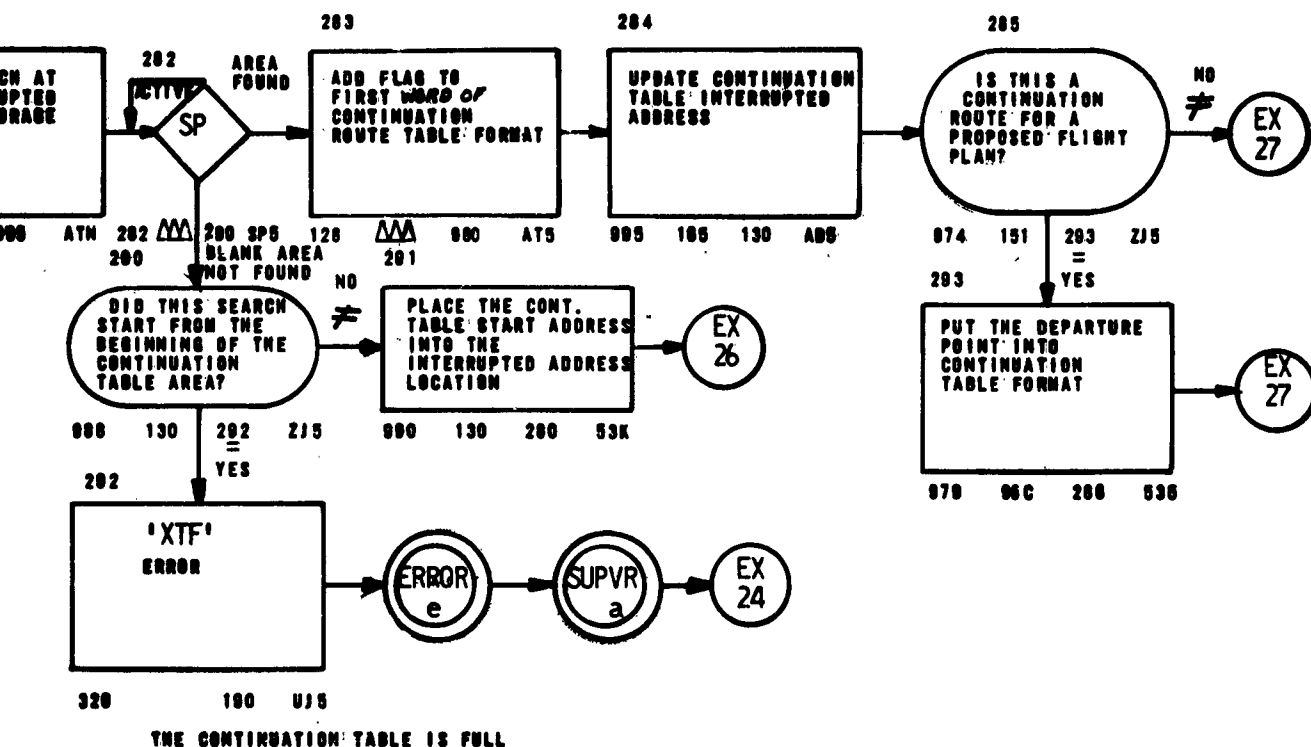






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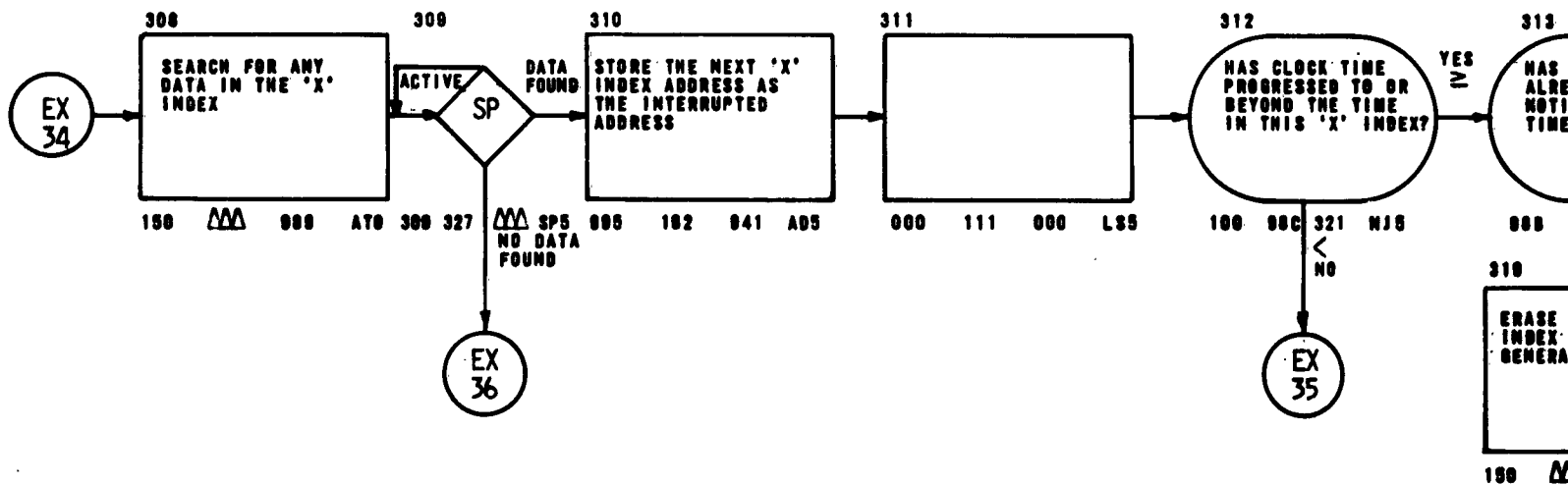
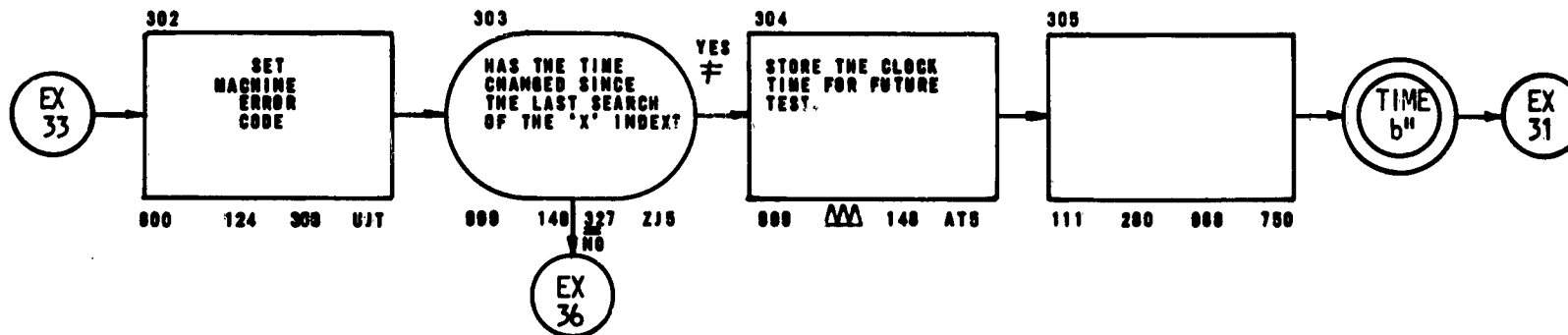




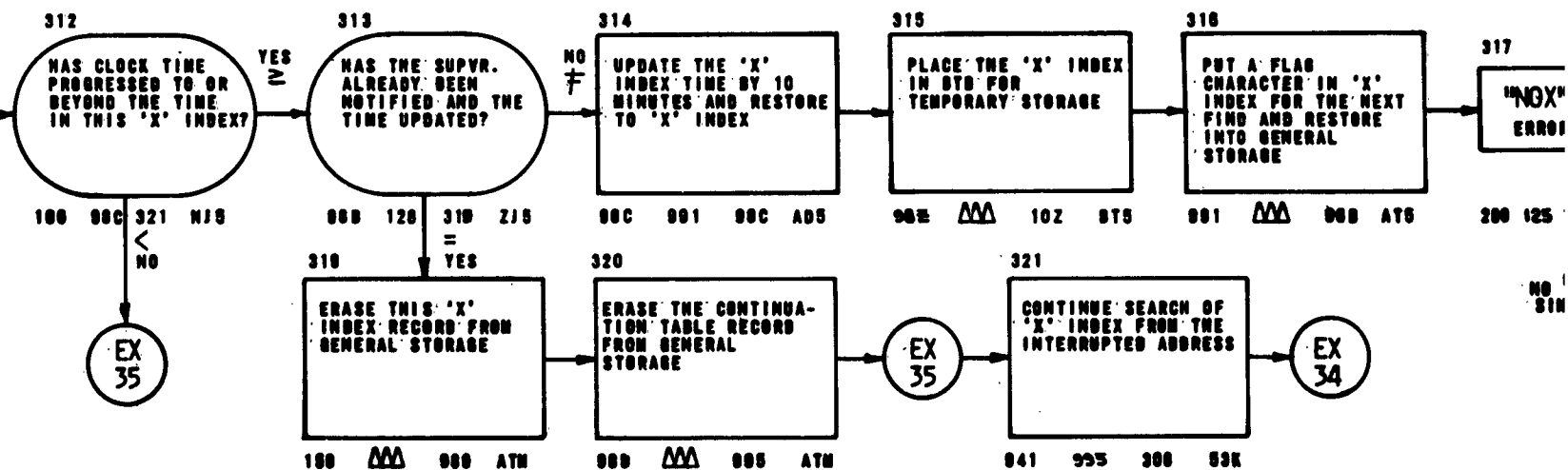
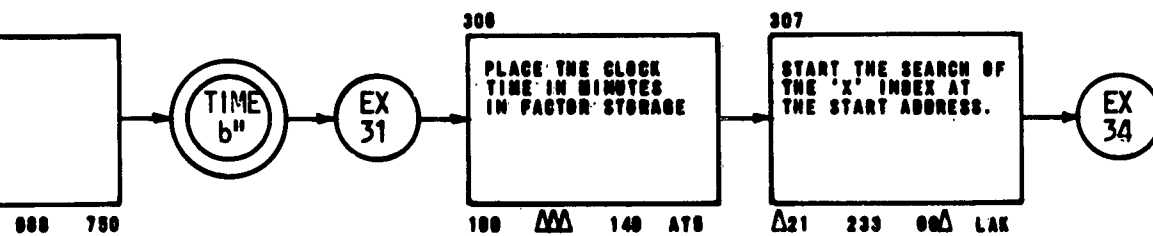
EXECUTIVE ROUTINE
(Building the 'X' Index
& Continuation Table)

Appendix IV
Page 7 of 22



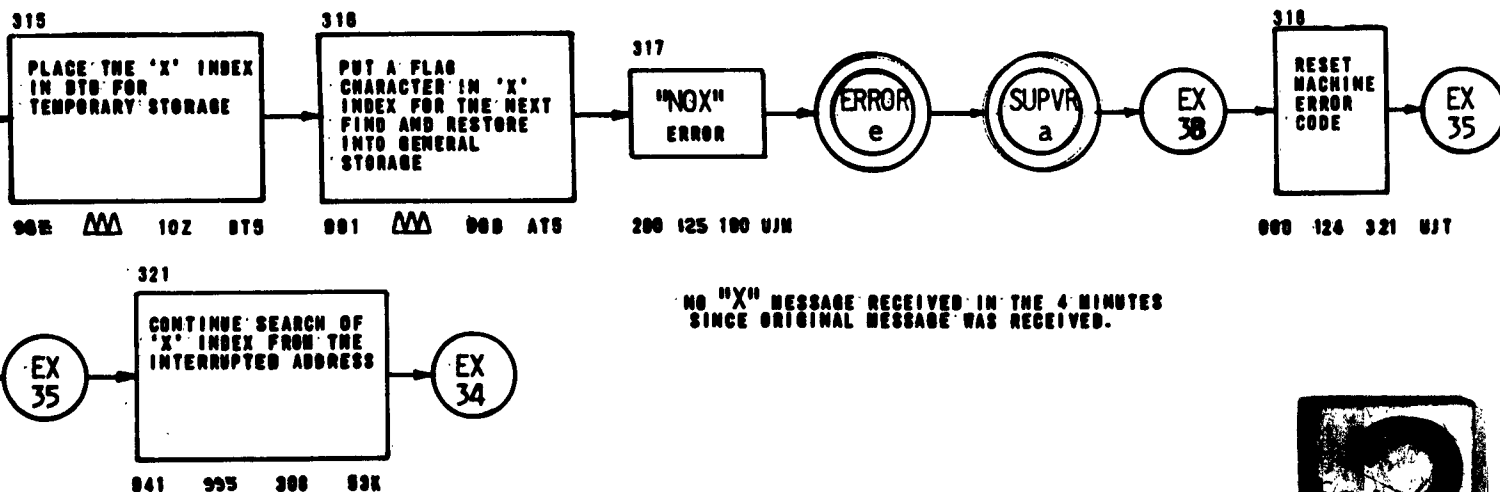
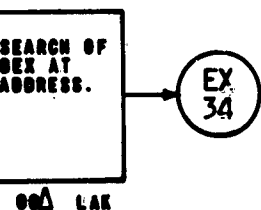


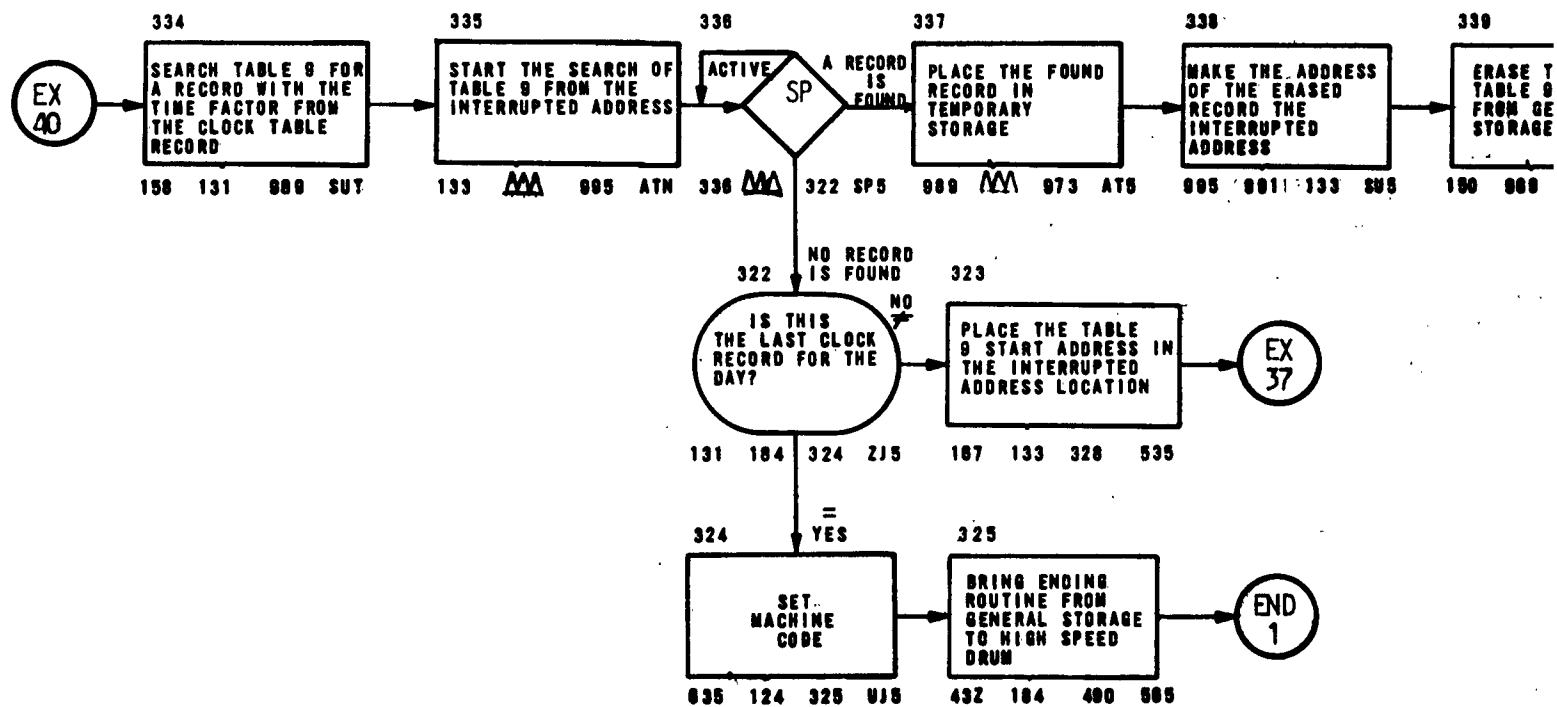
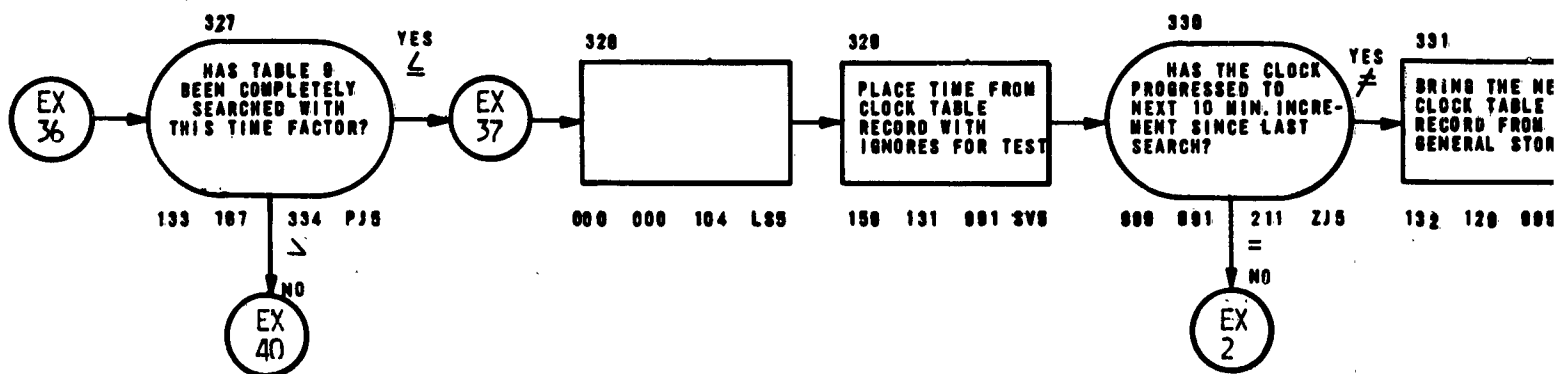
NO 'X' I
TO NTW
WAS SENT

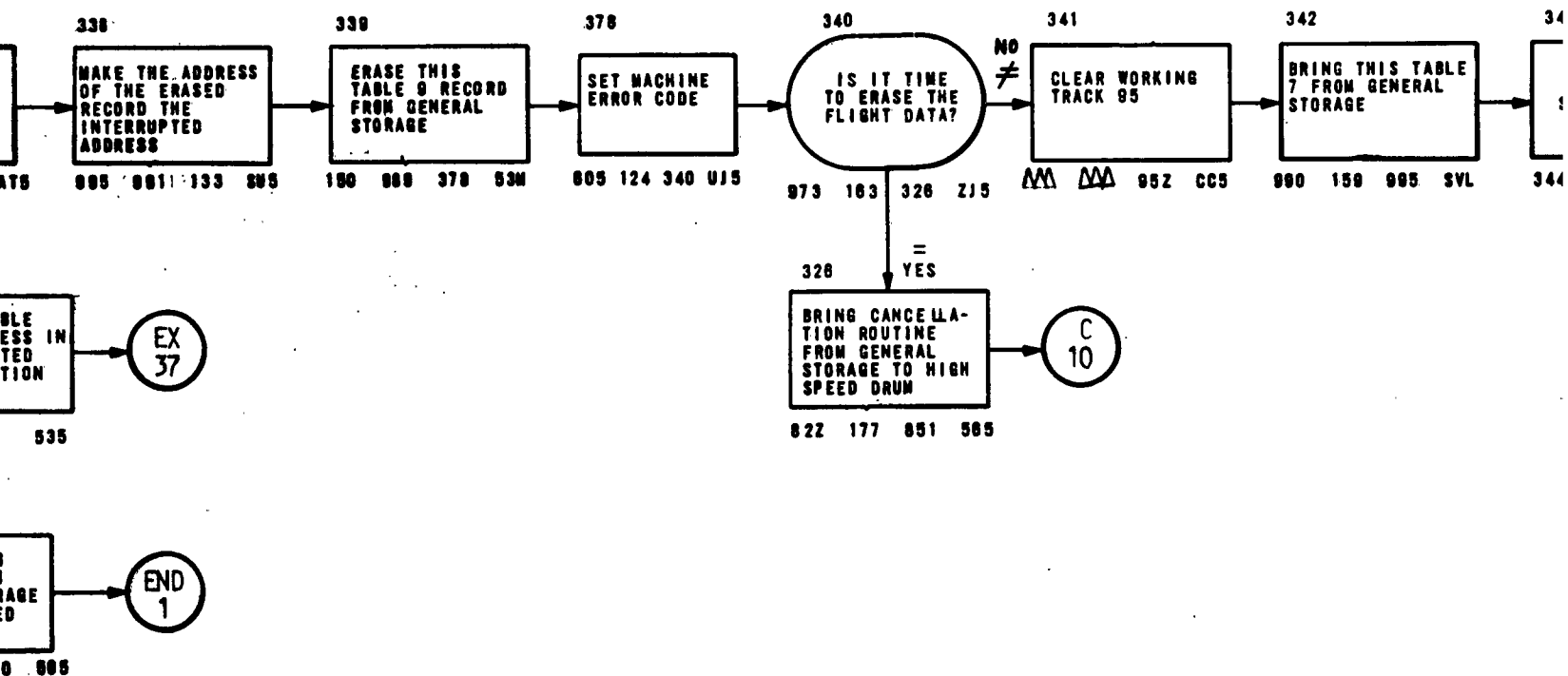


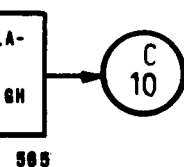
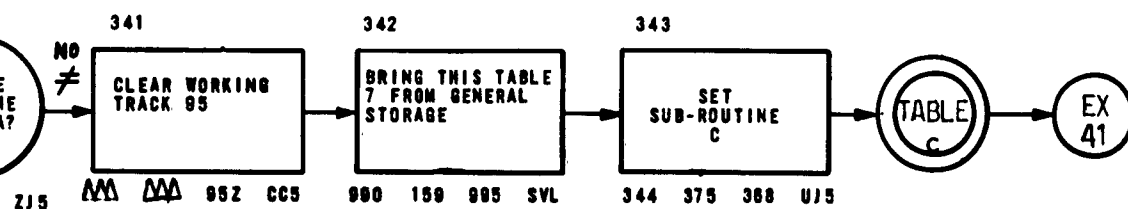
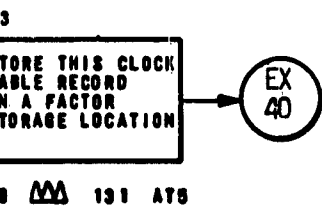
NO 'X' MESSAGE RECEIVED IN THE
10 MINUTES SINCE THE SUPERVISOR
WAS SENT THE "NOX" ERROR MESSAGE.



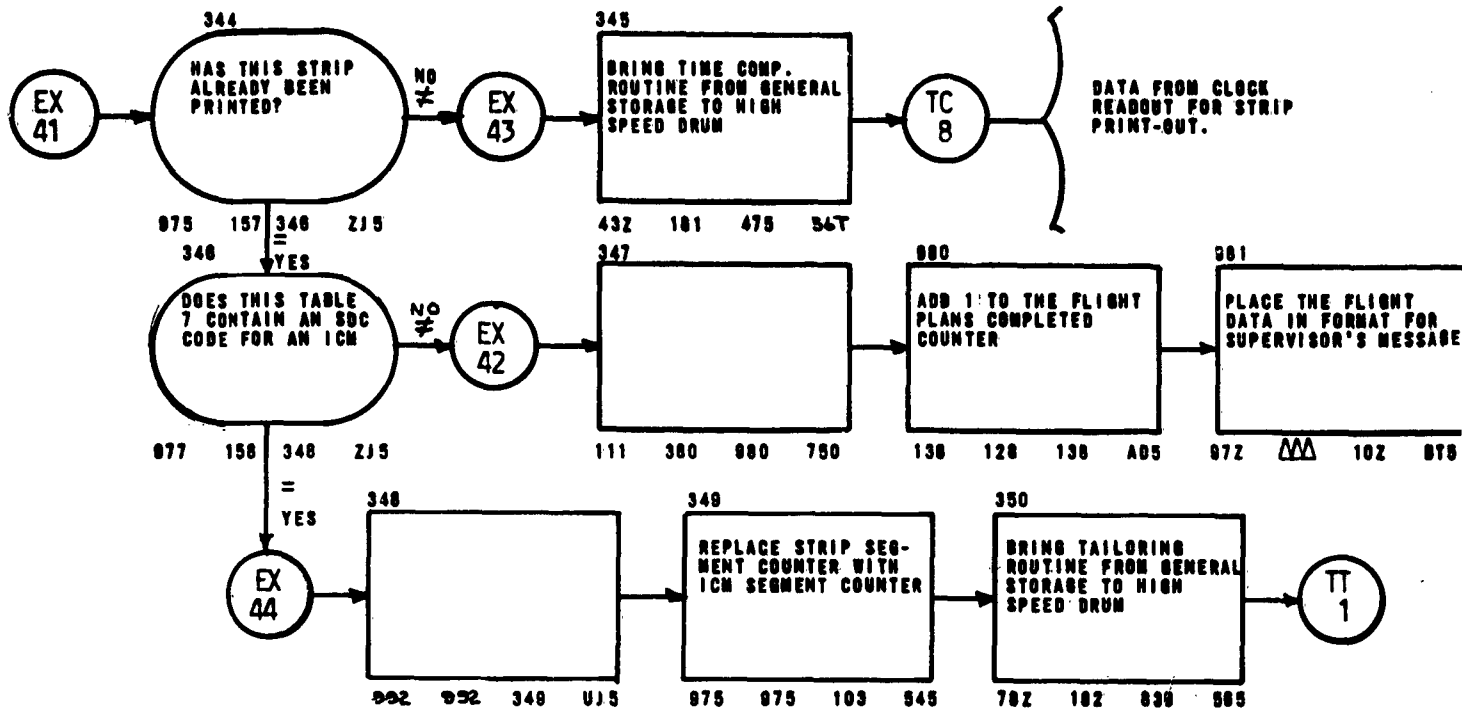






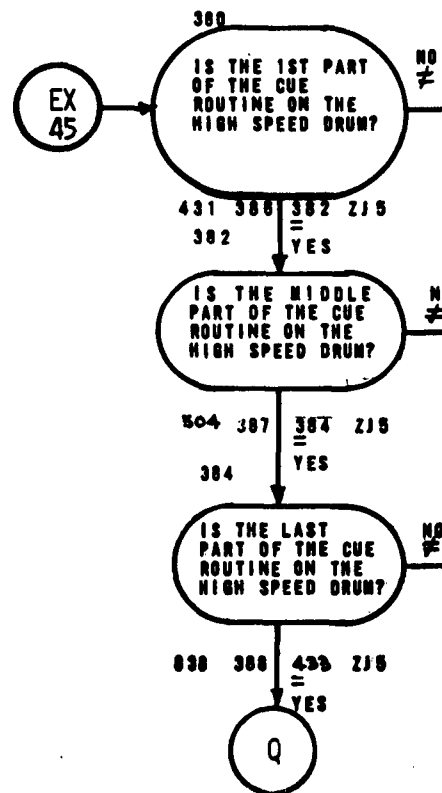


EXECUTIVE ROUTINE
(Searching Table 9)

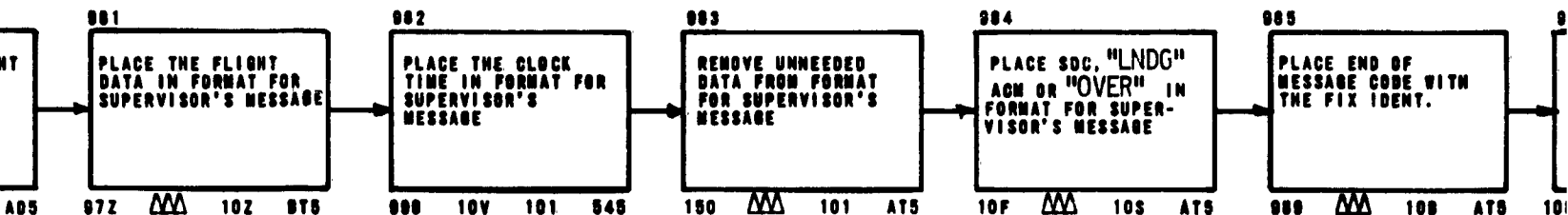


ONE STRIP DEPARTURE FLIGHT PLAN WITH ROUTE MODIFICATION, OR
DATA FROM CLOCK READOUT FOR ICM.

TEST TO DETERMINE IF
THE CUE ROUTINE IS ALREADY
ON THE HIGH SPEED DRUM.



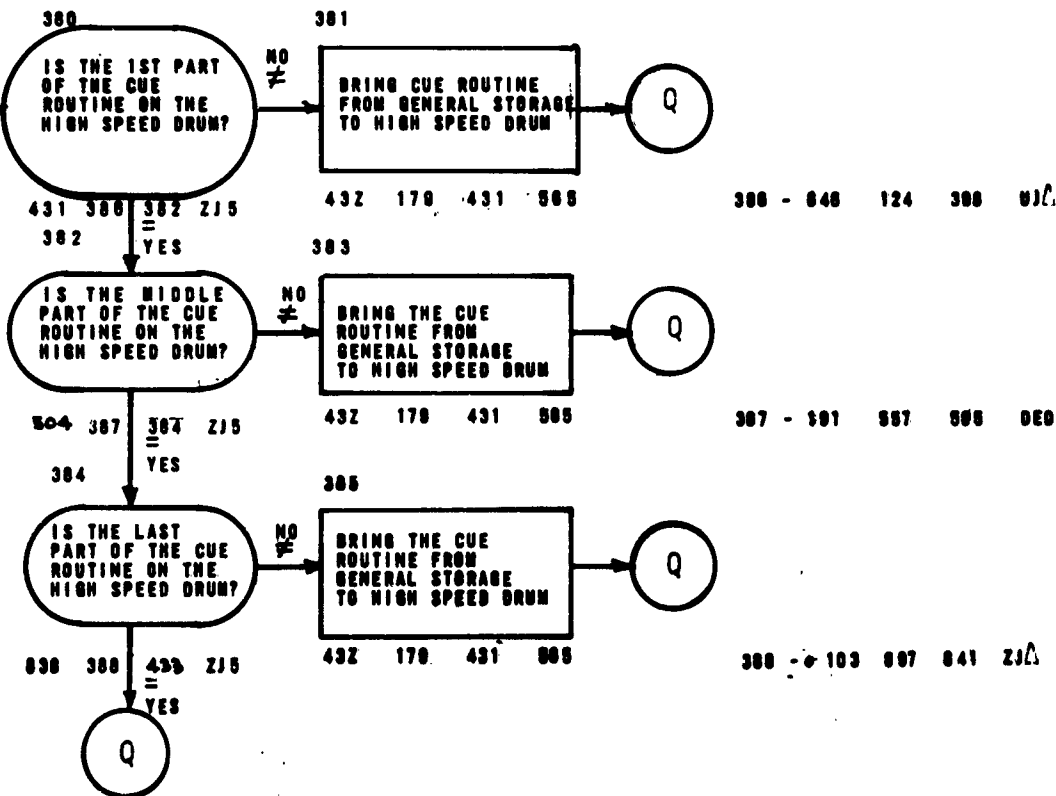
DATA FROM CLOCK
ABOUT FOR STRIP
INT-OUT.

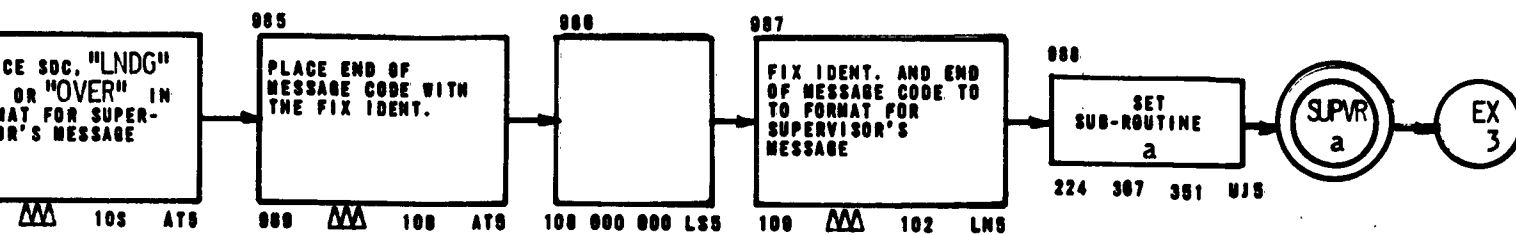


FORING
ION GENERAL
HIGH
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ALL PROCESSING ON THIS FLIGHT PLAN IS COMPLETE.
FORMAT MESSAGE TO NOTIFY SUPERVISOR.

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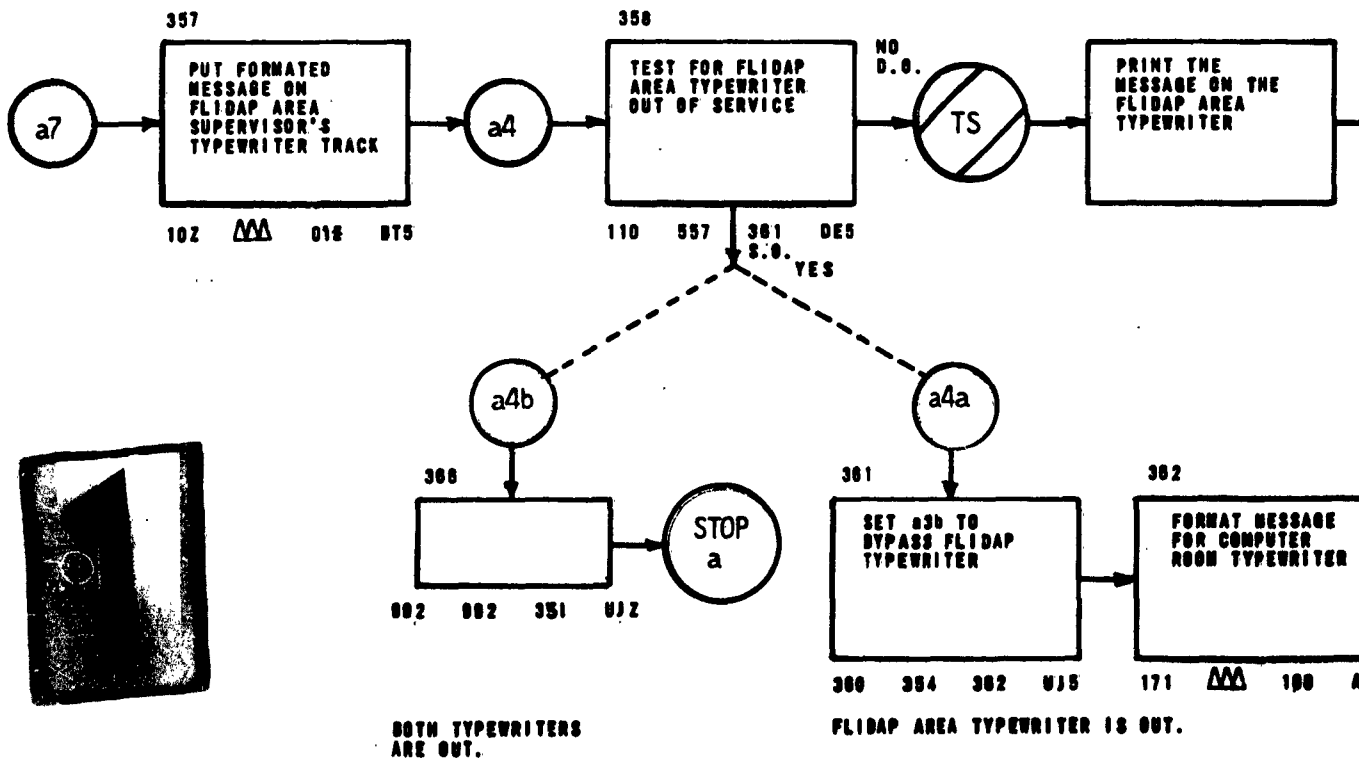
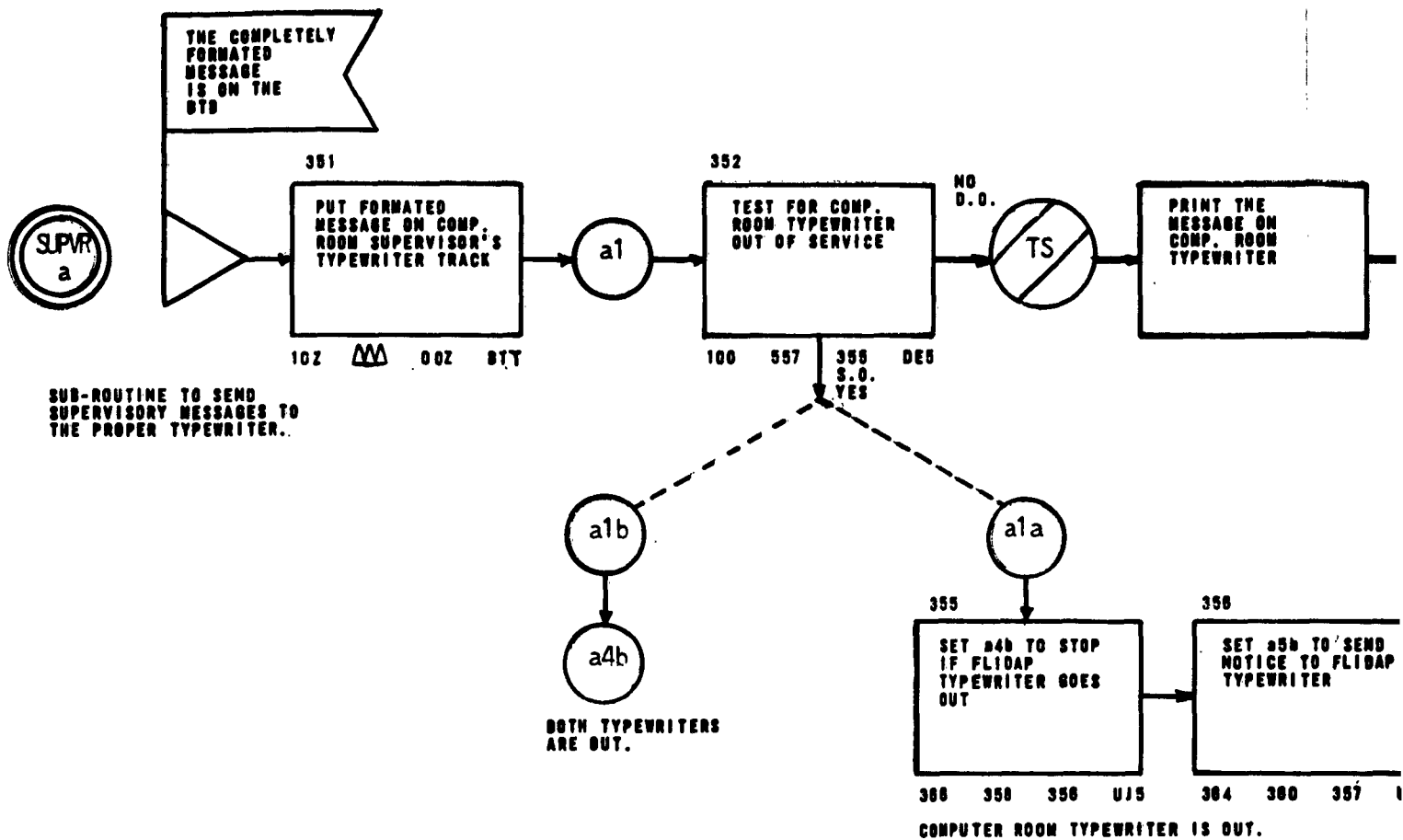


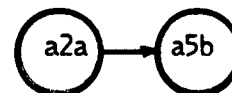
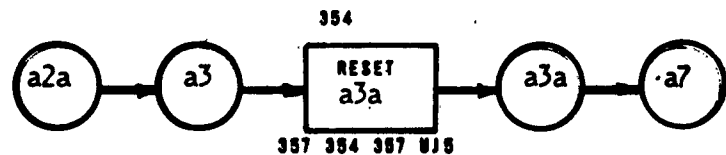
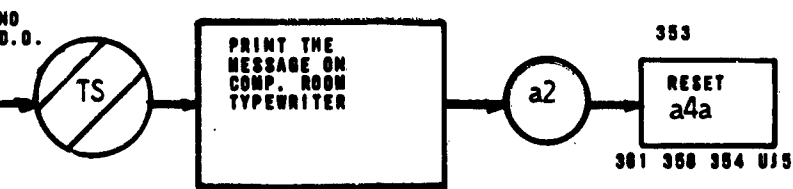


MAN IS COMPLETE.
END.

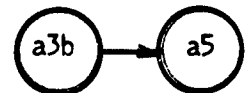
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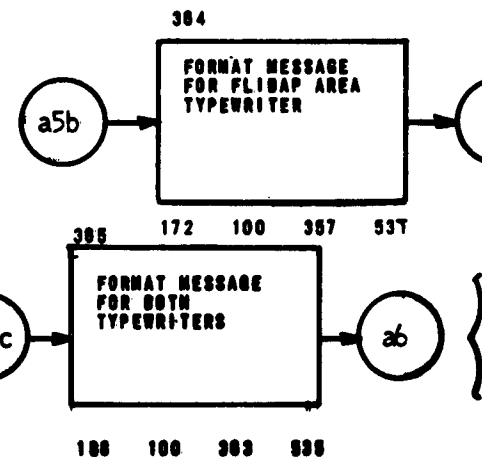
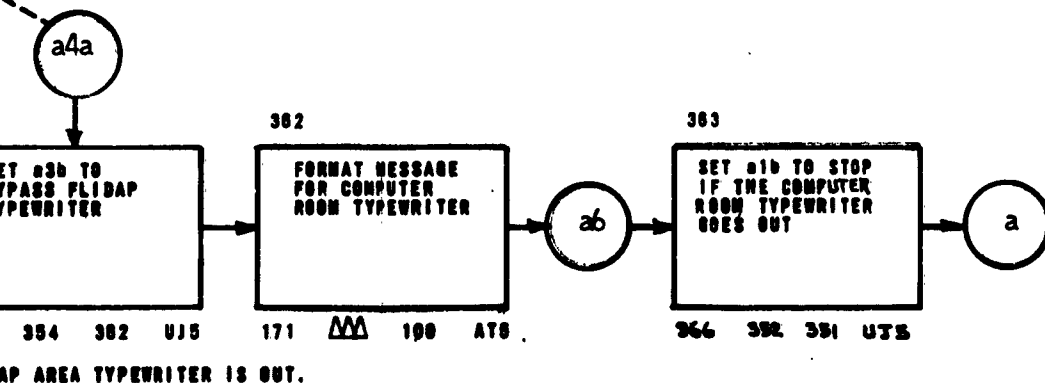
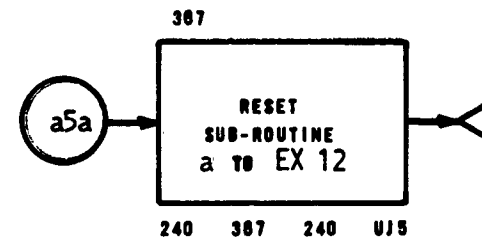
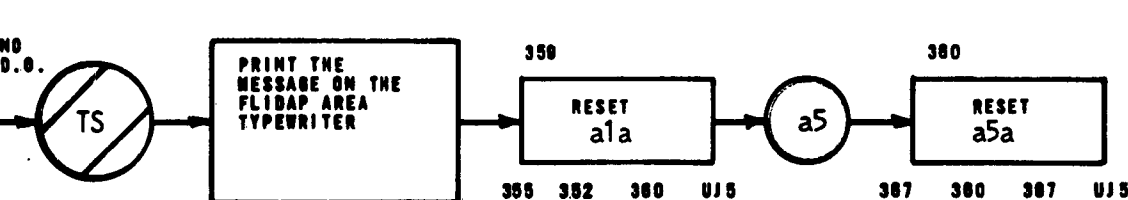
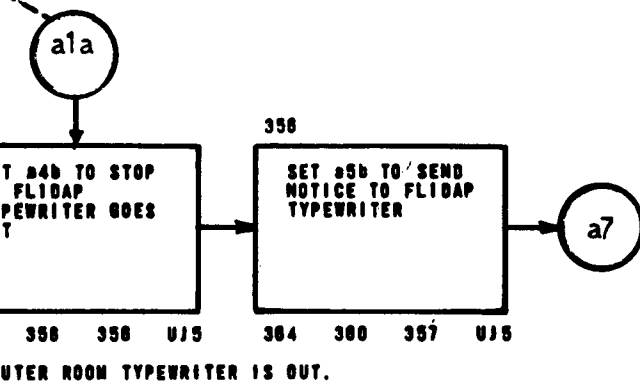


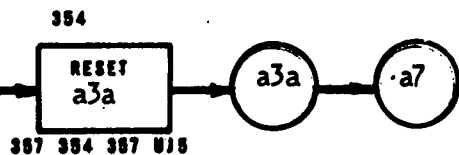


BYPASS OTHER TYPEWRITER WHILE IT IS BEING USED AS A STRIP PRINTER.

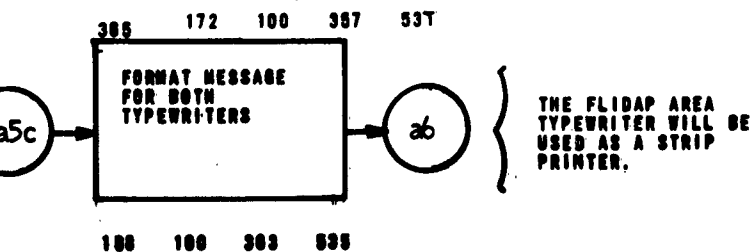
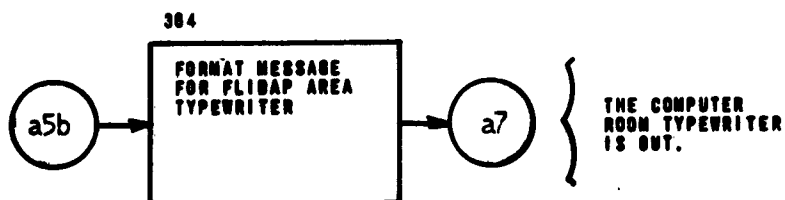
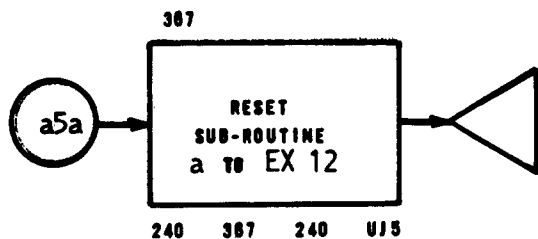


AFTER COMPUTER ROOM HAS RECEIVED MESSAGE TYPEWRITER IS OUT.



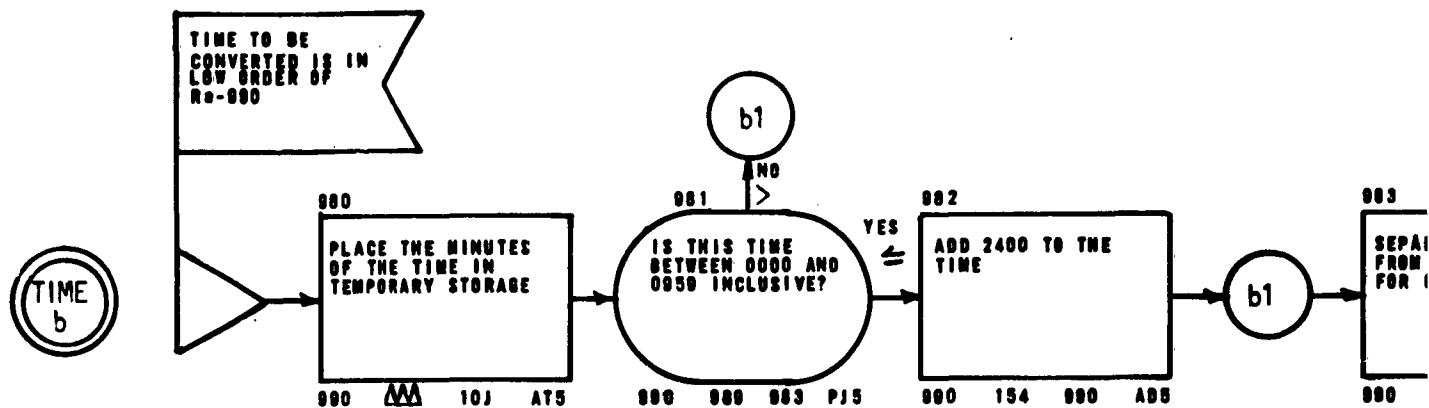


AFTER COMPUTER ROOM TYPEWRITER
HAS RECEIVED MESSAGE THAT FLIDAP
TYPEWRITER IS OUT.

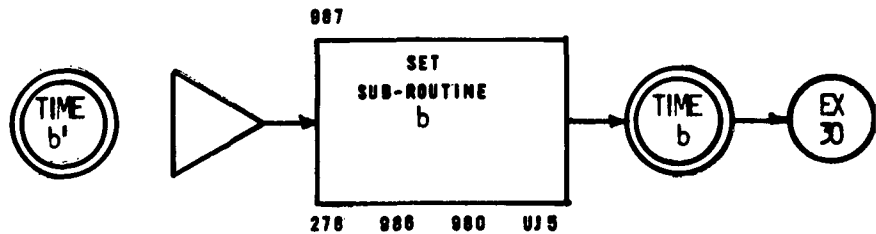


EXECUTIVE ROUTINE
(Supervisor's Message
Sub-Routine)

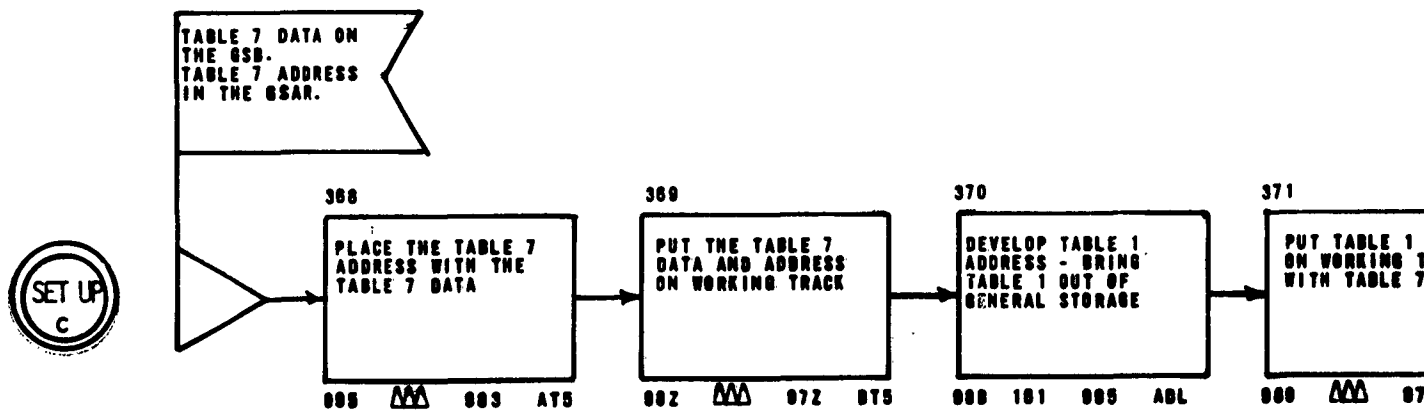
Appendix IV
Page 11 of 22



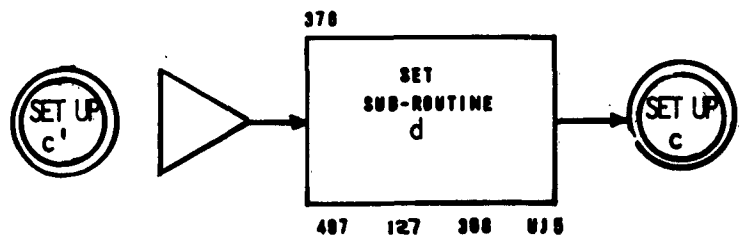
SUB-ROUTINE TO CONVERT A TIME, FROM HOURS AND MINUTES, TO MINUTES.



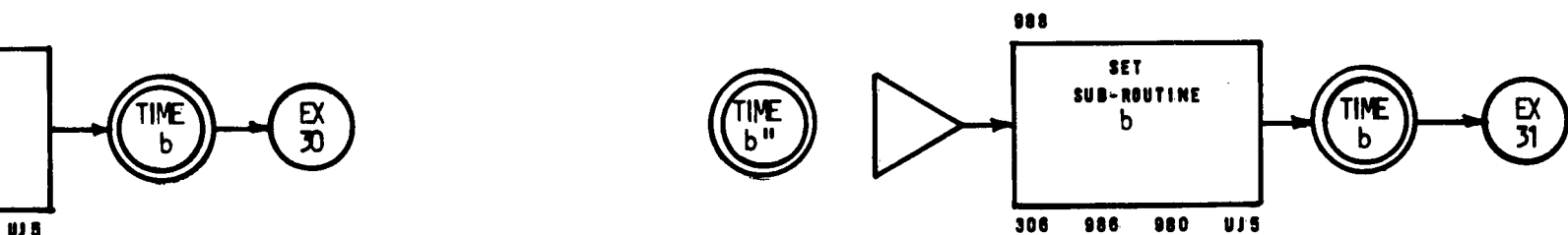
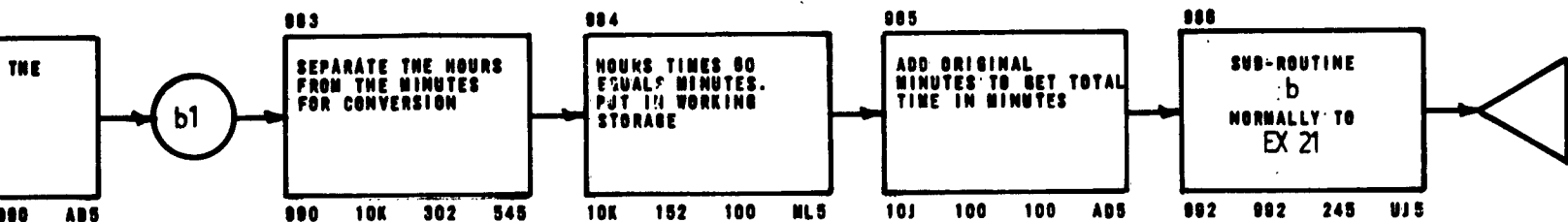
CONVERSION OF THE FLIGHT PLAN RECEIVED TIME FOR THE "X" INDEX FORMAT.



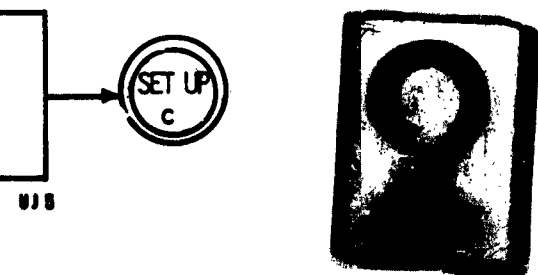
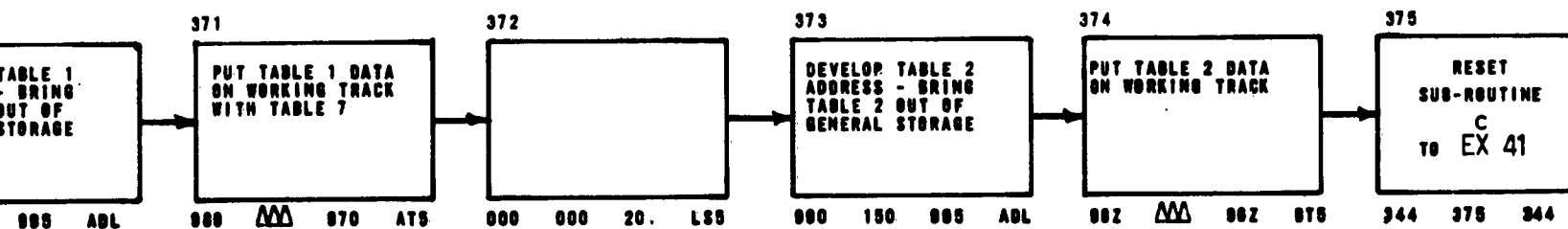
SUB-ROUTINE TO ESTABLISH DATA IN PROPER LOCATIONS FOR STRIP PRINT-OUT OR ICH.

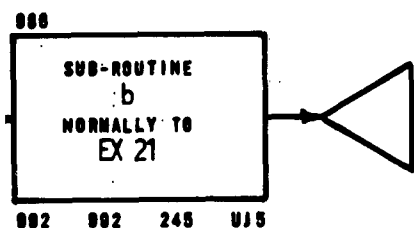


ENTRY POINT FROM READOUT ROUTINE FOR REPEAT PRINT-OUT OF ONLY 1 STRIP.

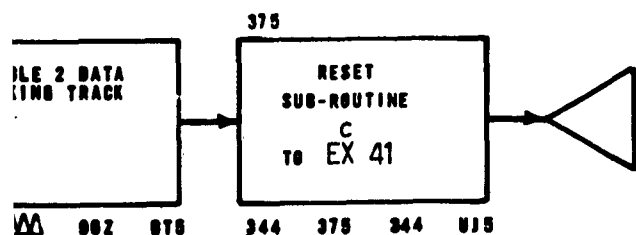
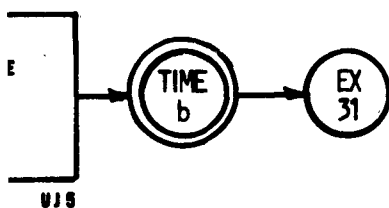


CONVERSION OF THE CLOCK TIME FOR
COMPARISON OF FOUND "X" INDEX RECORDS.



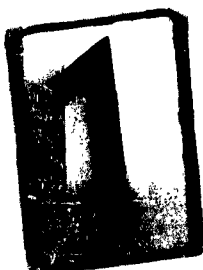
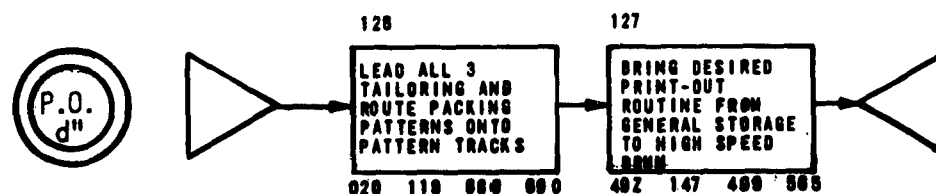
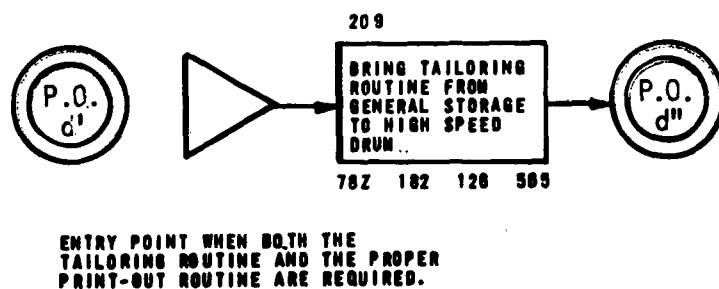
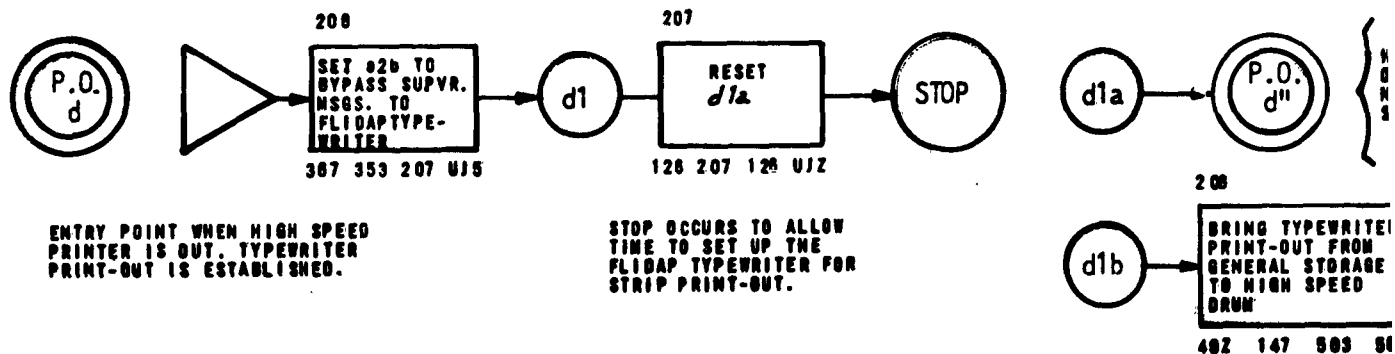


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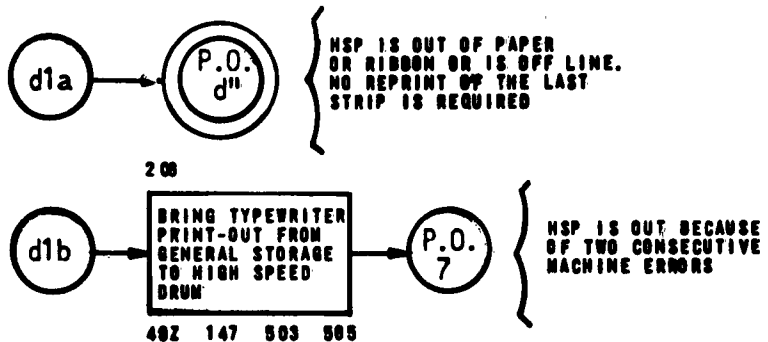


EXECUTIVE ROUTINE
(Sub-Routines)

Appendix IV
Page 12 of 22



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SUB-ROUTINE TO BRING THE PROPER
PRINT-OUT ROUTINE TO THE HIGH SPEED
DRUM AND TO RETAIN PROPER ENTRY
POINT TO THE PRINT-OUT ROUTINE
AFTER ONE ROUTINE REPLACES THE
OTHER ON THE HIGH SPEED DRUM.



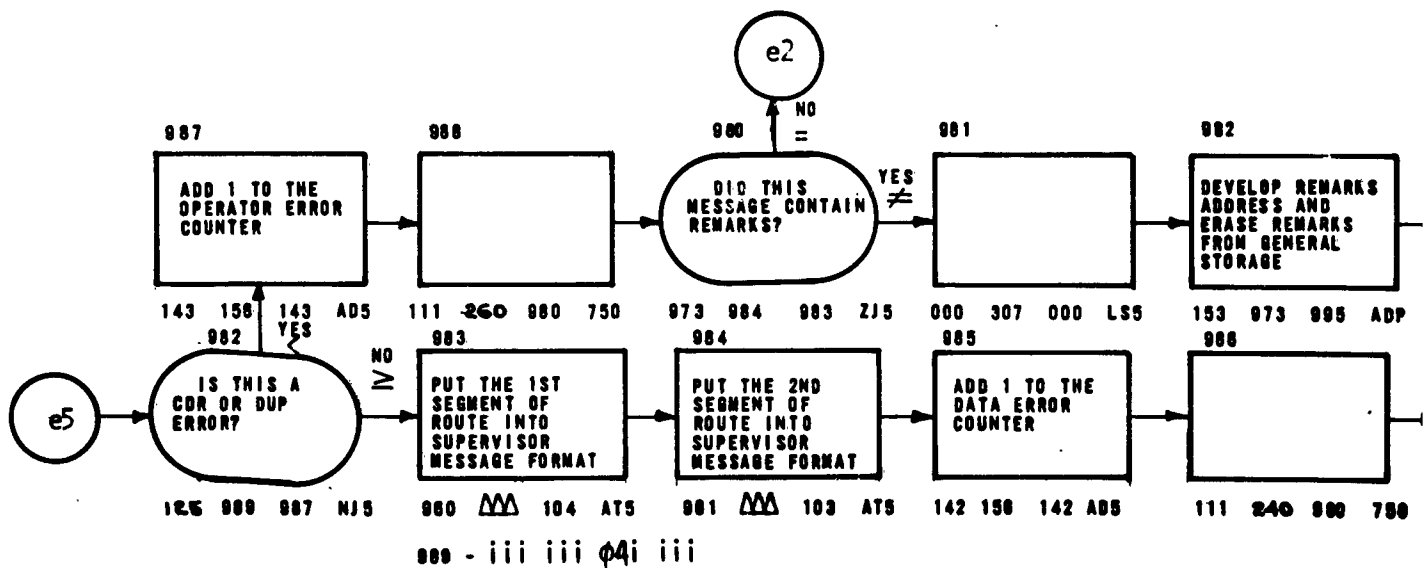
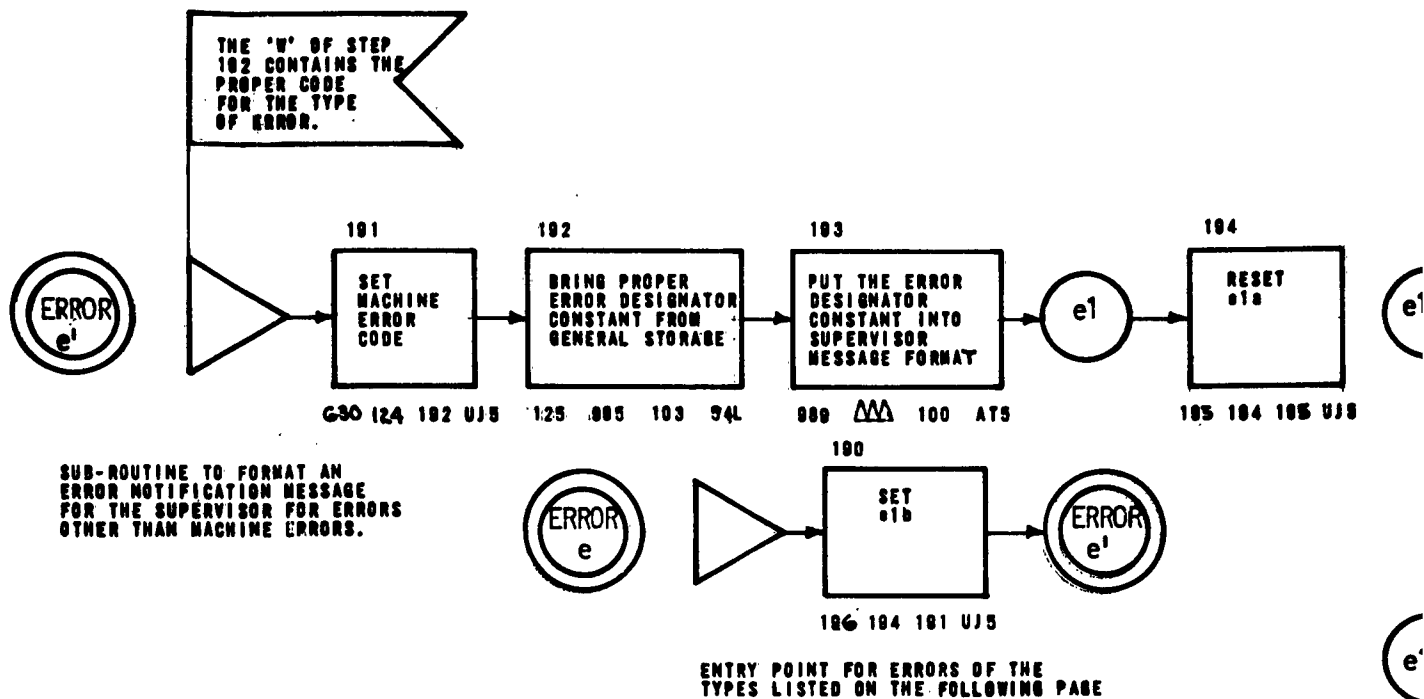
OUT BECAUSE
CONSECUTIVE
ERRORS

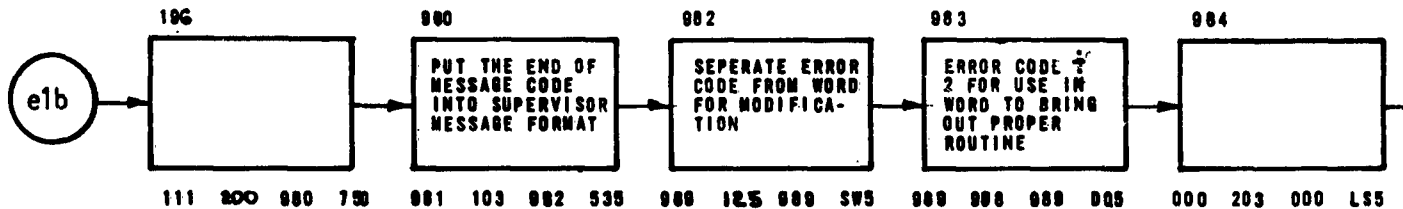
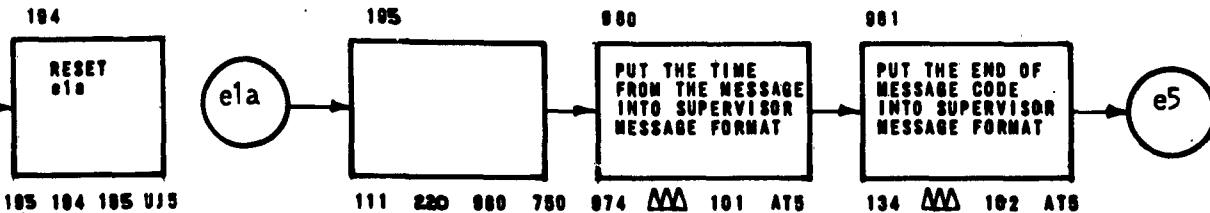
OPER
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ENTRY
TIME
THE
M.



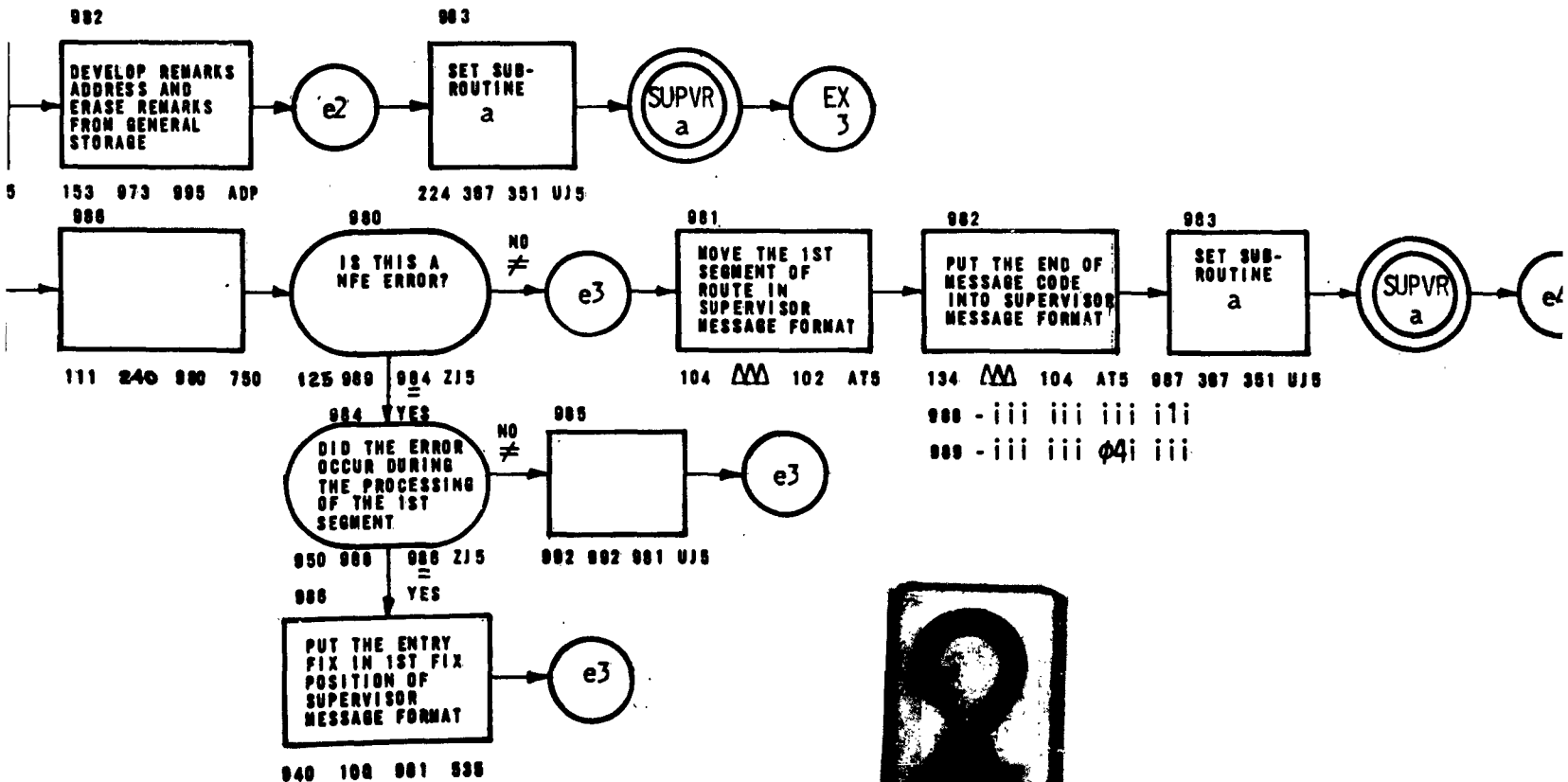
EXECUTIVE ROUTINE
(SUB-ROUTINES)

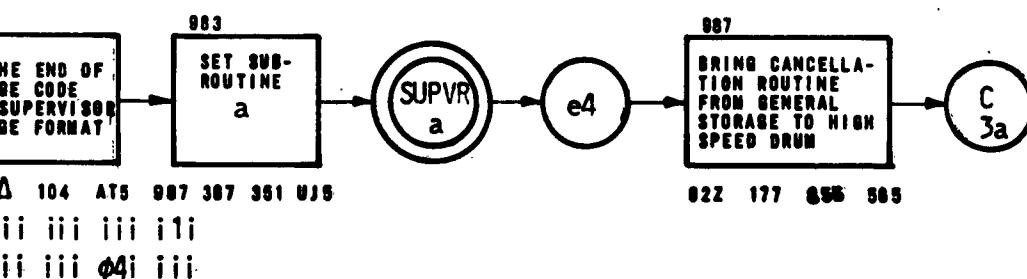
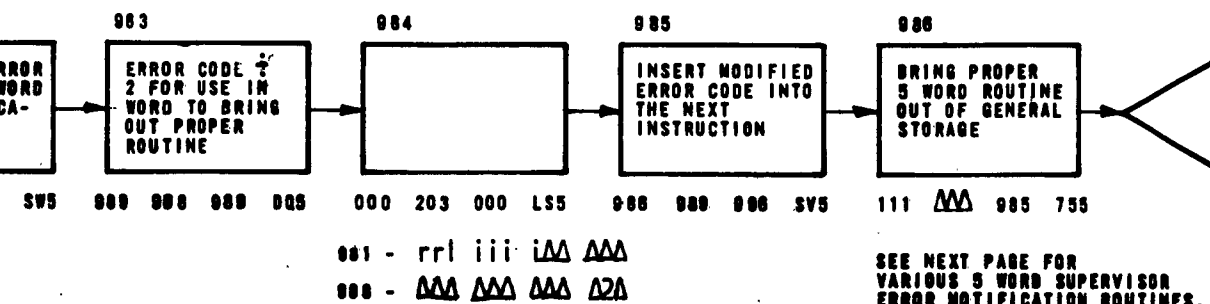
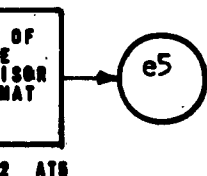
Appendix IV
Page 13 of 22



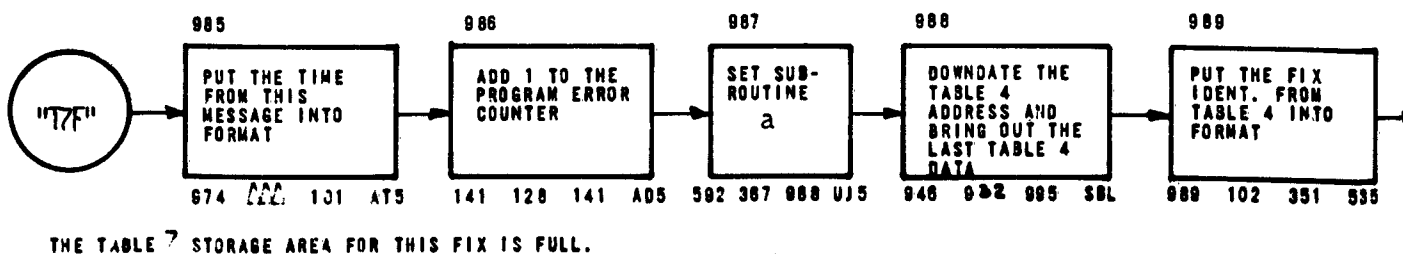
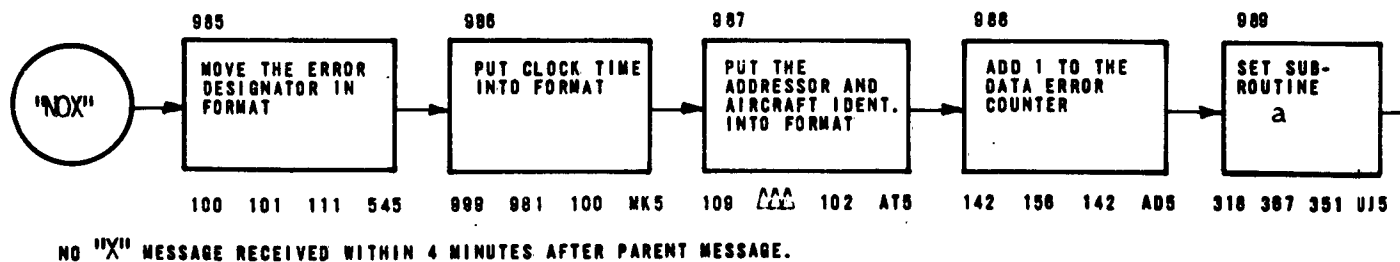
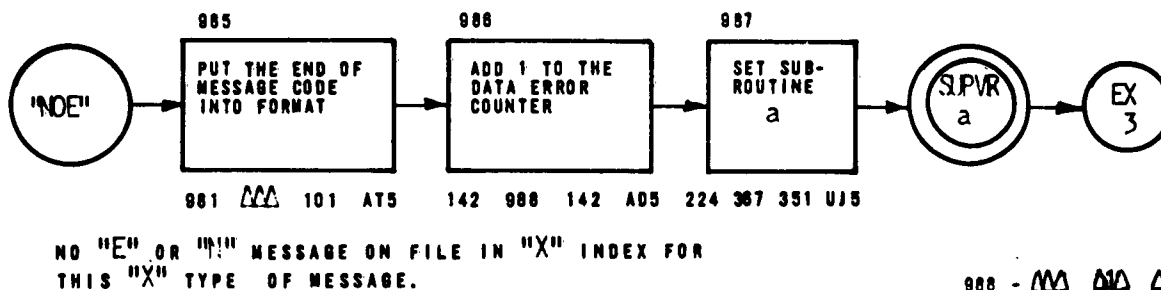
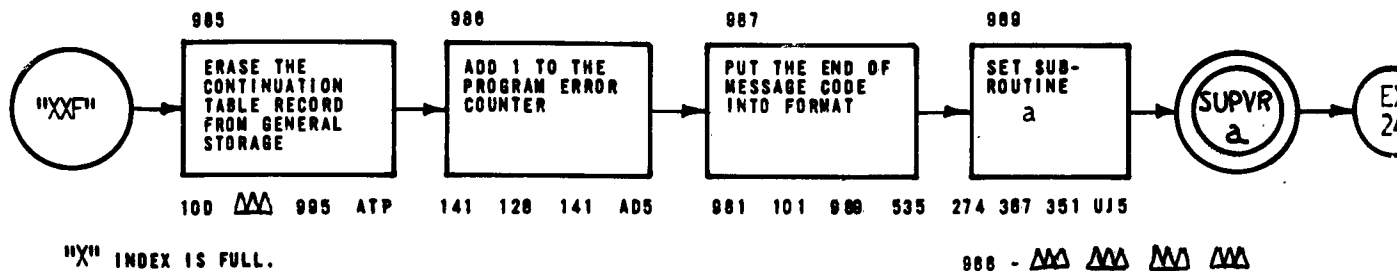
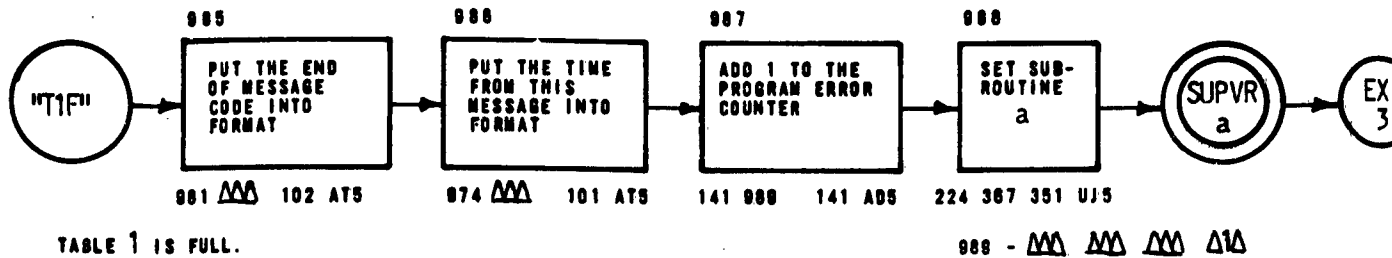


881 - rrl iii iΔ /
888 - ΔΔ ΔΔ ΔΔ /





EXECUTIVE ROUTINE
(ERROR SUB-ROUTINE)



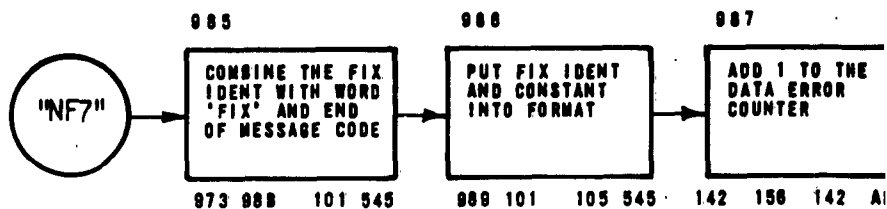
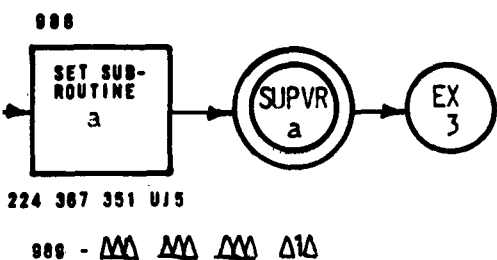
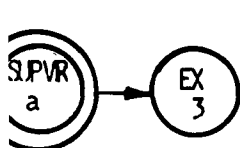
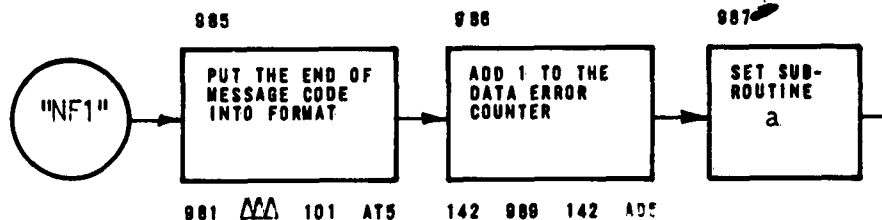
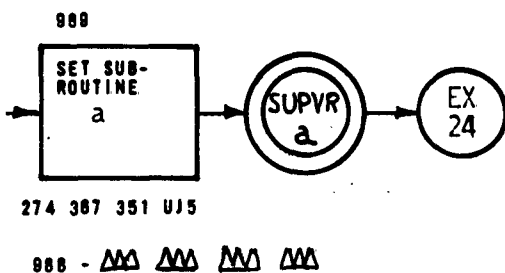
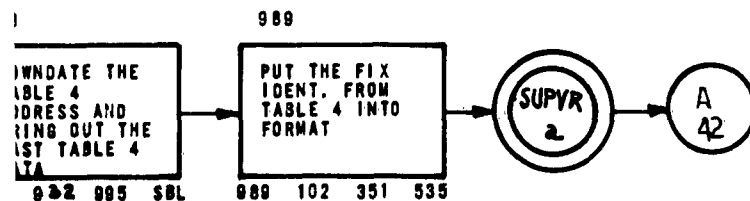
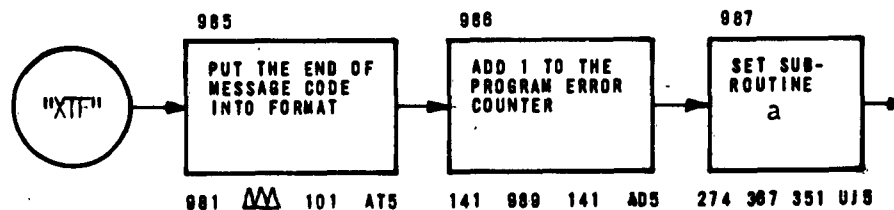
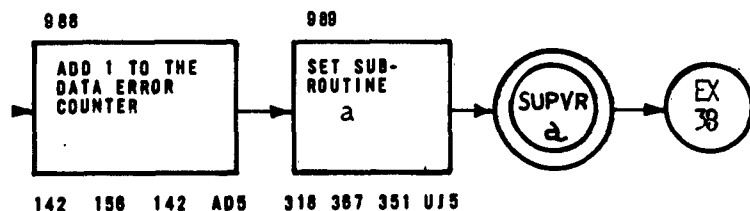
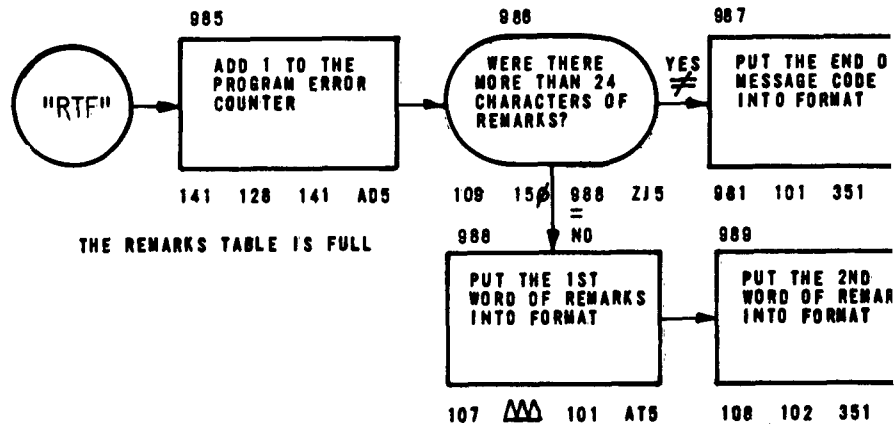


TABLE 7 REQUIRED FOR STRIP READOUT NOT FOUND.

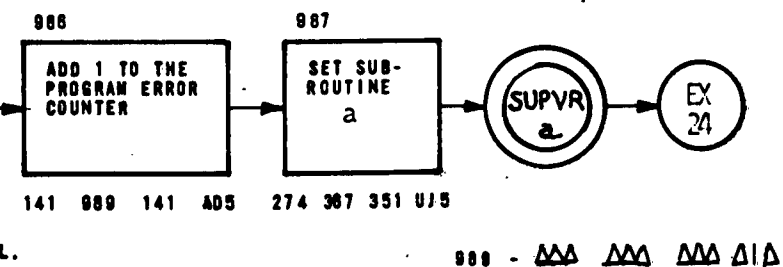
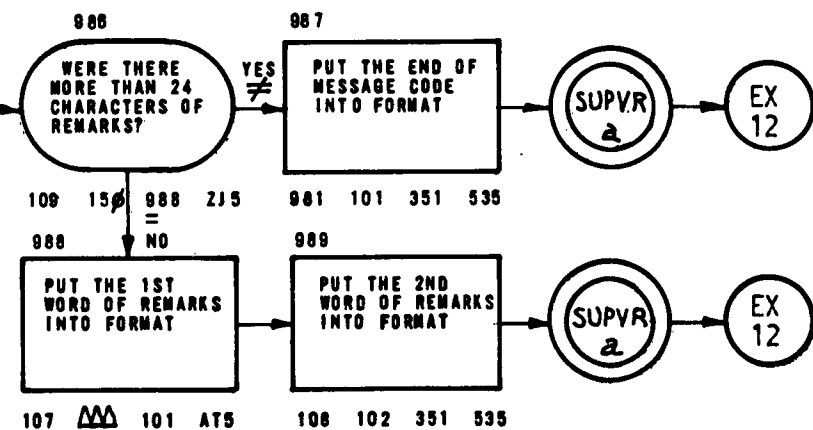
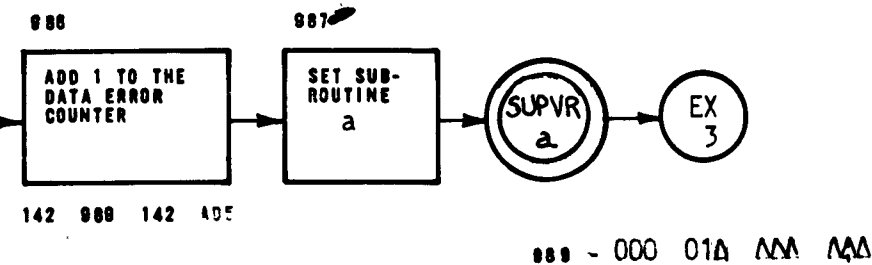
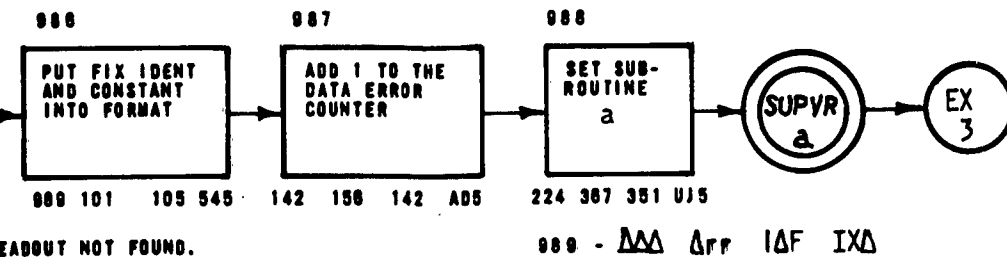


986 - ~~MM~~ ~~MM~~ ~~MM~~ ~~MM~~ ~~MM~~



THE CONTINUATION TABLE IS FULL.

981 - rr| 111 i~~MM~~ ~~MM~~ ~~MM~~



EXECUTIVE ROUTINE
(SUPERVISOR ERROR
NOTIFICATION
ROUTINES)

FLIGHT DATA - WORKING TRACK 97 - AS SENT TO THE PROCESSING ROUTINES.

'E', 'N' OR 'M' KINDS OF MESSAGE

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	0
WORD 0						A	D	S	R		E	N
1						F	L	T	I	D	N	T
2									T	Y	P	E
3												
4												
5												
6												
7	1st	W	O	R	D	R	E	M	A	R	K	S
8	2nd	W	O	R	D	R	E	M	A	R	K	S
9	3rd	W	O	R	D	R	E	M	A	R	K	S

'P' KIND OF MESSAGE

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
WORD 0						A	D	S	R		'P'	
1						F	L	T	I	D	N	T
2												
3												
4												
5												
6												
7												
8												
9												

THE MODIFIED REMARKS ADDRESS WOULD APPLY ONLY IF THERE WERE REMARKS.
TRACK 97 FOR 'X', 'P' AND 'C' KINDS REMAINS UNCHANGED.

FLIGHT DATA - WORKING TRACK 97 - AS SENT TO TIME COMPUTATION AFTER PROCESSING.

'E' OR 'N' KINDS OF MESSAGES

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
WORD 0						A	D	S	R		E	N
1						F	L	T	I	D	N	T
2									T	Y	P	E
3												
4												
5												
6												
7	1st	W	O	R	D	R	E	M	A	R	K	S
8	STARTING	TBL.							T	Y	P	E
9												

'X' KIND OF MESSAGE

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
WORD 0						A	D	S	R		X	
1						F	L	T	I	D	N	T
2												
3												
4												
5												
6												
7												
8												
9												

L-FIX = LAST FIX PROCESSED ON ORIGINAL PORTION

WORKING TRACKS, AS SENT TO THE PRINT-OUT ROUTINE FOR AN

ROUTE - TRACK 00 - REMAINS EXACTLY
AS RECEIVED, FOR ALL KINDS OF
MESSAGES, WHEN SENT TO THE PROCESSING
ROUTINES.

FLIGHT DATA - TRACK 97

[illegible]

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
WORD 0						F	L	T.	I	D	N	T
1	1st	W	O	R	D	R	E	M	A	R	K	S
2	2nd	W	O	R	D	R	E	M	A	R	K	S
3	MODIFIED REMARKS	ADR.	A	L	T	D	S	P	E	D		
4						'P'	Y	I	N	H	E	
5							IN	HRS	&	MIN		
6	'P'	IN	HRS.	&	MIN.							
7	1st	W	O	R	D	R	E	M	A	R	K	S
8	2nd	W	O	R	D	R	E	M	A	R	K	S
9	3rd	W	O	R	D	R	E	M	A	R	K	S

CHARAI

WD:

ROUTE - TRACK 98 - AS SENT TO TIME COMPUTATION
AFTER PROCESSING. TABLE 2 FROM GENERAL STORAGE.

ER PROCESSING.

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
WORD 0	D	P	T	R	!	.	.	A	W	Y		.
1	J	C	T	2	N	D	A	W	Y		2	J
2	C	T	3	R	D	A	W	Y		3	J	C
3	T	4	T	H	A	W	Y		4	J	C	T
4	5	T	H	A	W	Y		5	J	C	T	6
5	T	H	A	W	Y		6	J	C	T	7	T
6	H	A	W	Y		C	T	Y	V	D	E	S
7	T	.	.	.		D	E	S	T	.	.	.
8	STARTING YBL. & ADR. CONTINUATION TOL. ADR.								T	Y	P	E
9	MODIFIER REMARKS				A	L	T	D	S	P	E	N

WORD

**THE
PORTION**

1.	8	DRCTN.	L-	F	I	X
----	---	--------	----	---	---	---

BASED ON ORIGINAL PORTION



WORKING TRACKS, AS SENT TO THE PRINT-OUT ROUTINE FOR AN 'N' KIND OF MESSAGE RECEIVED FROM ANOTHER CENTER

FLIGHT DATA - TRACK 87

	11	10	9	8	7	6	5	4	3	2	1	S
					F	L	T	.	I	D	N	T
1st	W	O	R	D	R	E	M	A	R	K	S	
2nd	W	O	R	D	R	E	M	A	R	K	S	
MODIFIED REMARKS ADDR.	A	L	T	D	S	P	E	D				
					P	I	N	M	S	.	M	I
P	I	N	M	S	.	M	I	N				
1st	W	O	R	D	R	E	M	A	R	K	S	
2nd	W	O	R	D	R	E	M	A	R	K	S	
3rd	W	O	R	D	R	E	M	A	R	K	S	

ROUTE - TRACK 88

CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S
WORD 0	D	P	T	R	I	S	T	A	W	Y		1
1	J	C	T	2	N	D	A	W	Y		2	J
2	C	T	3	R	D	A	W	Y		3	J	C
3	T	4	T	H	A	W	Y		4	J	C	T
4	5	T	H	A	W	Y		5	J	C	T	6
5	T	H	A	W	Y		6	J	C	T	7	T
6	H	A	W	Y		7	T					
7	.	.	.									
8									T	Y	P	E
9	MODIFIED REMARKS ADDR.	A	L	T	D	S	P	E	D			

TO TIME COMPUTATION
FROM GENERAL STORAGE.

	6	5	4	3	2	1	S
S	T	A	W	Y			I
D	A	W	Y		2	J	
A	W	Y		3	J	C	
W	Y		4	J	C	T	
Y		5	J	C	T	6	
	6	J	C	T	7	T	
C	T	Y	Y	D	E	S	
D	E	S	T	.	.	.	
ADDR.					T	Y	P
L. ADDR					E		
	L	T	D	S	P	E	D



110	1	5	2	1	1	1	2	1	0	5	6	5	Plugboard start Executive load step.
111	3	9	2	Δ	0	1	1	0	4	6	0	Δ	Executive load factor.
120	2	4	8	2	5	0	2	5	2	2	5	2	Addresses of load steps for "N", "E", "M" or "D" kinds of messages from CDR.
121	2	5	6	2	5	5	2	5	4	2	5	3	Addresses of load steps for "R", "C", "P" or "X" kinds of messages from CDR.
122	1	0	1	9	8	3	7	9	1	8	7	1	Addresses of steps for plugboard start, machine error start, breakpoint start of End Routine, or CDR error from the plugboard.
124	Δ	Δ	Δ	Δ	Δ	Δ	6	0	0	Δ	Δ	Δ	Machine error code.
125	Δ	1	1	1	1	4	-	-	-	Δ	Δ	Δ	Error constant.
128	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	1	Δ	1 update constant.
129	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	2	Δ	2 update constant.
130	Δ	Δ	Δ	Δ	0	1	2	3	4	0	0	Δ	Continuation Table interrupted address.
131	0	8	1	1	3	0	0	0	0	0	0	0	The current Clock Table record for a ten minute period.
132	Δ	Δ	Δ	Δ	1	1	2	8	6	0	0	Δ	The general storage address of the above Clock Table record.
133	Δ	1	Δ	Δ	1	1	2	2	0	0	0	Δ	Table 9 interrupted address.
134	r	r	l	;	r	t	Δ	Δ	Δ	Δ	Δ	.	Messages received counter and typewriter control codes.

Each of the words from 135 thru 144 contain 2 counters, 1 in the high order 6 character positions and 1 in the low order 6 positions. They appear as follows originally:

Δ	Δ	Δ	Δ	Δ	Δ	r	Δ	Δ	Δ	Δ	Δ	r
---	---	---	---	---	---	---	---	---	---	---	---	---

After counting has progressed, they may appear as follows:

0	0	0	0	5	r	0	0	9	4	1	r
---	---	---	---	---	---	---	---	---	---	---	---

High order 6		Low order 6	
135	Message received from ZDC.	Message received from ZNY.	
136	Message voided on input.	Number of strips printed.	
137	Messages sent to ZNY.	Messages sent to ZDC.	
138	Number of flight plans received.	Number of flight plans completed.	
139	Number of computer machine errors.	Number of HSP machine errors.	
140	Number of input machine errors.	Number of output machine errors.	
141	Number of CUE machine errors.	Number of Program errors.	
142	Number of Data errors.	Number of messages added to the total count twice, once in CUE and once in Executive routine.	
143	Number of input operator errors.	Number of CUE operator errors.	
144	Number of CUE messages received	Number of CUE messages transmitted.	

147		7	7	2	Δ	0	1	1	3	5	0	0	Δ	Print-out load factor
-----	--	---	---	---	---	---	---	---	---	---	---	---	---	-----------------------

The following two working storage locations are initially all spaces.
The X's indicate the locations of the data when inserted by the
program into these words.

148		Δ	Δ	Δ	Δ	Δ	Δ	X	X	X	X	Δ	Storage for the current time in hours and minutes.
-----	--	---	---	---	---	---	---	---	---	---	---	---	---

149		Δ	Δ	Δ	Δ	Δ	Δ	X	X	X	X	Δ	Storage for the above time converted to minutes and adjusted where necessary for a new day.
-----	--	---	---	---	---	---	---	---	---	---	---	---	--

Note: Words 110 thru 149 may be varied by the program during a
run and are never to be initialized except at the start
of a days run. A load of the Executive routine during a
run should only be made from a plugboard start which will
start the load from track 152.

Note: The data shown in the above locations is the initial data
contained at the start of a run.

150	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Spaces comparator.
151	i	i	i	i	i	i	P	i	i	i	i	i	i	Proposed comparator.
152	0	0	0	0	0	0	0	0	0	6	0	Δ	Δ	Time conversion constant.
153	0	0	0	0	3	1	2	0	0	0	0	0	0	Remarks Table address modifier.
154	Δ	Δ	Δ	Δ	Δ	Δ	Δ	2	4	0	0	Δ	Δ	Time adjustment constant.
156	Δ	Δ	Δ	Δ	1	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Counter update constant.
157	i	i	i	i	i	i	i	i	i	i	P	i	i	Print factor comparator.
158	i	z	i	i	i	i	i	i	i	i	i	i	i	SDC comparator.
159	i	i	i	i	5	0	i	i	i	i	i	i	i	Table 7 address modifier and comparator.
161	0	0	0	0	1	0	1	0	0	0	0	0	0	Table 1 address modifier.
162	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	4	+	+	4 minute update constant for the time.
163	i	i	i	i	i	i	i	.	.	.	.	i	i	Pads comparator.
164	i	i	i	i	i	i	z	i	i	i	i	i	i	End of Clock Table and SDC comparator.
165	0	0	0	0	0	0	0	0	0	2	0	Δ	Δ	Table address update constant.
166	i	i	i	i	i	C	T	T	Y	i	i	i	i	Continuation route comparator.
167	Δ	Δ	Δ	Δ	1	1	2	2	0	0	0	Δ	Δ	Table 9 starting address.
169	Δ	Δ	Δ	Δ	1	1	2	8	7	8	6	Δ	Δ	Clock Table address to end operations.
170	r	?	t	R	E	M	A	R	K	S	-	-	-	Constant to designate remarks added to the supervisor's message.
171	r	/	1	Δ	Δ	0	U	T	r	r	i	i	i	Word sent to computer supervisor when Flidap supervisor's typewriter is out.
172	r	/	0	Δ	Δ	0	U	T	r	r	i	i	i	Word sent to Flidap supervisor when computer supervisor's typewriter is out.

Words 173 thru 184 are the factors used to bring out a routine from general storage and place it on the high speed drum. The first 3 characters are the routine's last high speed drum track; and the remaining characters are the general storage address of the first blockette of the routine.

173	6	8	Z	Δ	0	1	1	2	0	0	0	Δ	Airway routine load factor.
174	6	0	Z	Δ	0	1	1	5	8	0	0	Δ	Modification routine load factor.
175	8	9	Z	Δ	0	1	1	5	5	8	0	Δ	Continuation routine load factor.
176	8	9	Z	Δ	0	1	1	8	0	4	0	Δ	Position Report routine load factor.
177	8	5	Z	Δ	0	1	1	6	6	0	0	Δ	Cancellation and Erase routine load factor.
178	5	4	Z	Δ	0	1	1	6	2	0	0	Δ	Readout routine load factor.
179	8	9	Z	Δ	0	1	1	6	7	0	0	Δ	CUE routine load factor.
181	4	8	Z	Δ	0	1	1	2	6	0	0	Δ	Time Computation routine load factor.
182	8	3	Z	Δ	0	1	1	4	2	0	0	Δ	Tailoring routine load factor.
183	8	1	Z	Δ	0	1	1	4	6	0	0	Δ	Direct routine load factor.
184	5	4	Z	Δ	0	1	1	0	1	0	0	Δ	Ending routine load factor.
185	1	1	1	1	1	1	Z	N	Y	1	1	1	ENVY comparator.
188	a	t	?	P	O	Δ	O	N	Δ	1	r	r	Word to supervisor's message when future strip print-out will be on the Flidag typewriter.

Working storage locations.

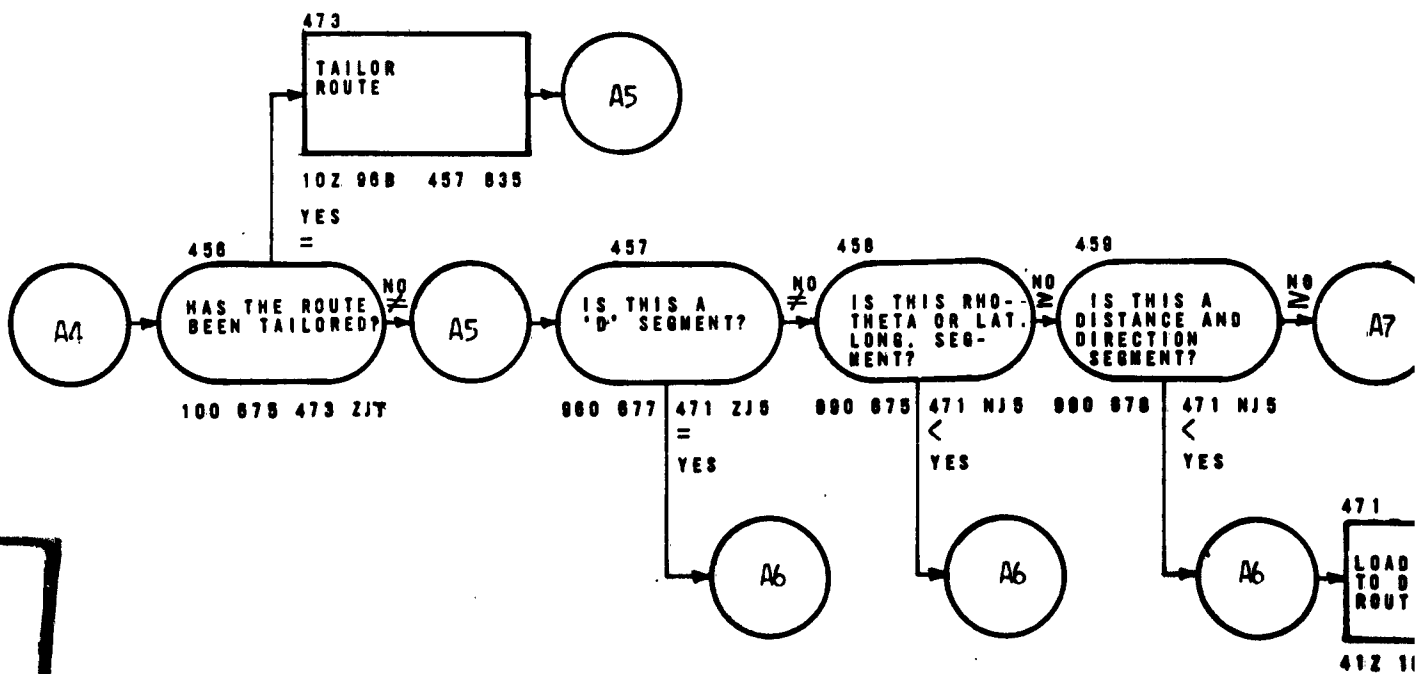
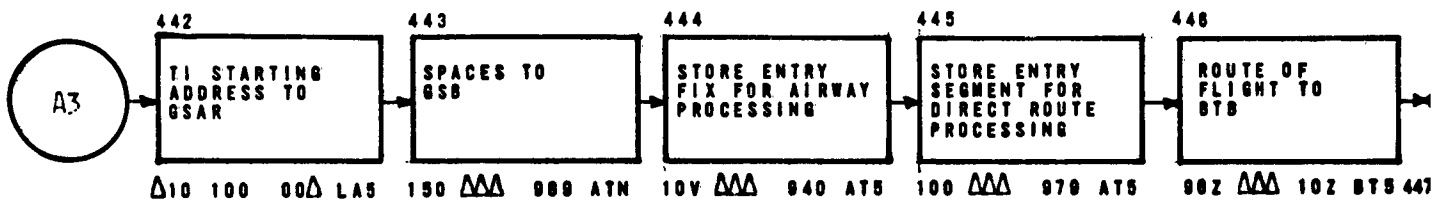
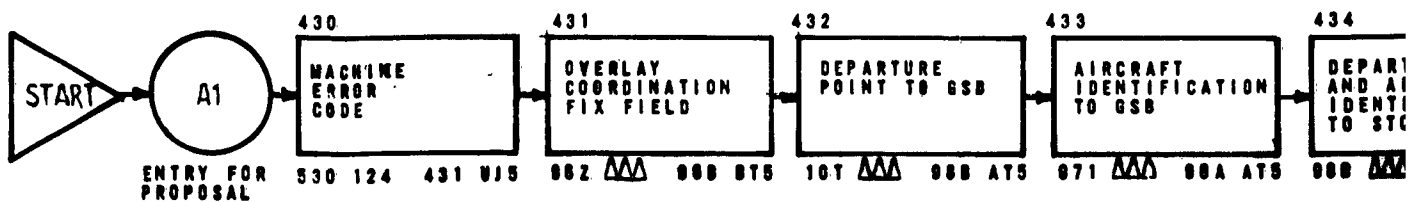
The X's indicate the locations of data stored in these words.

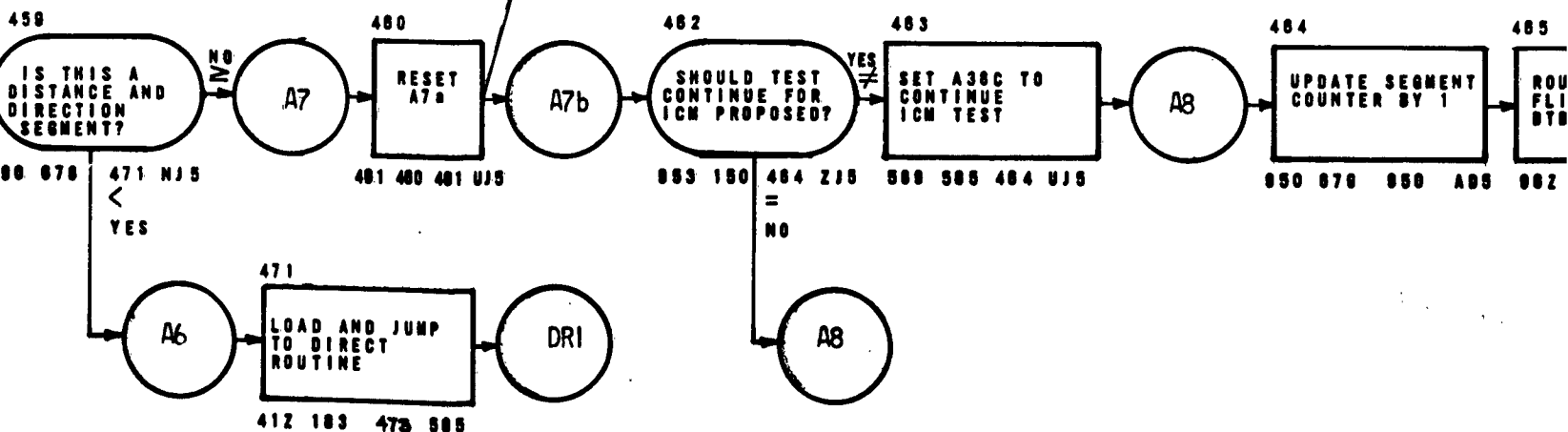
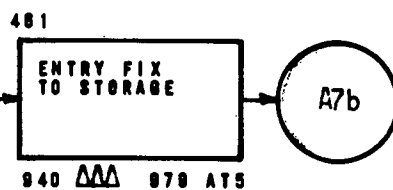
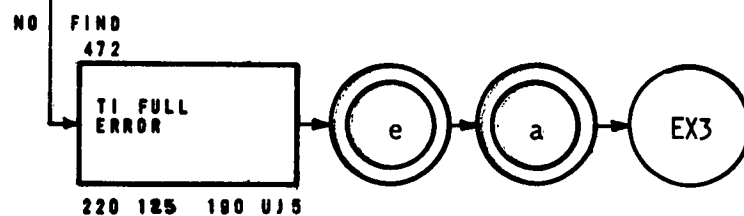
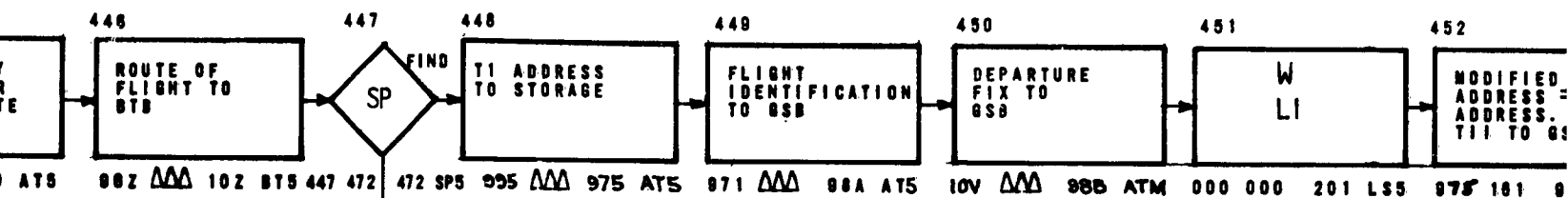
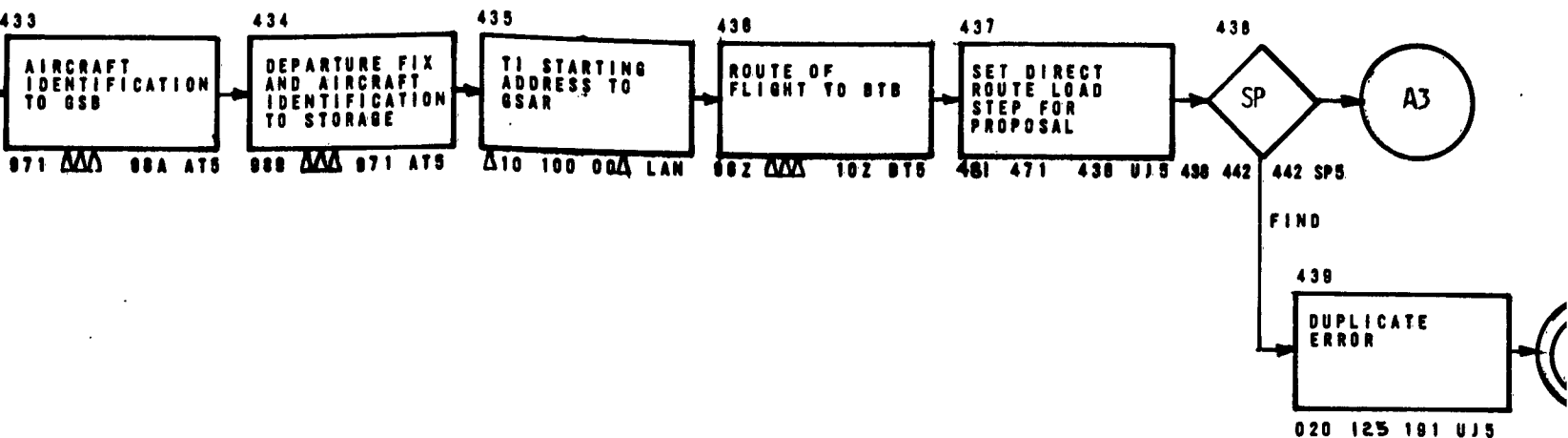
934	Δ	Δ	Δ	Δ	Δ	Δ	Δ	X	X	X	X	Δ	The time in hours and minutes when a message was received into the computer.
940	Δ	Δ	Δ	Δ	Δ	Δ	Δ	X	X	X	X	Δ	Entry fix.
941	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	"X" Index interrupted address.
944	Δ	Δ	Δ	Δ	Δ	Δ	Δ	X	X	X	X	Δ	SDC.
946	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	Modified Table 4 address
948	X	X	X	X	X	X	X	X	X	X	X	X	Last segment of route.
950	0	0	0	0	0	0	X	X	X	0	0	0	Segment counter.
951	0	0	0	0	0	0	0	0	0	0	4	+	Address modifier.
955	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	Starting Table 7 address.
959	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	Last Table 7 address of the parent message.

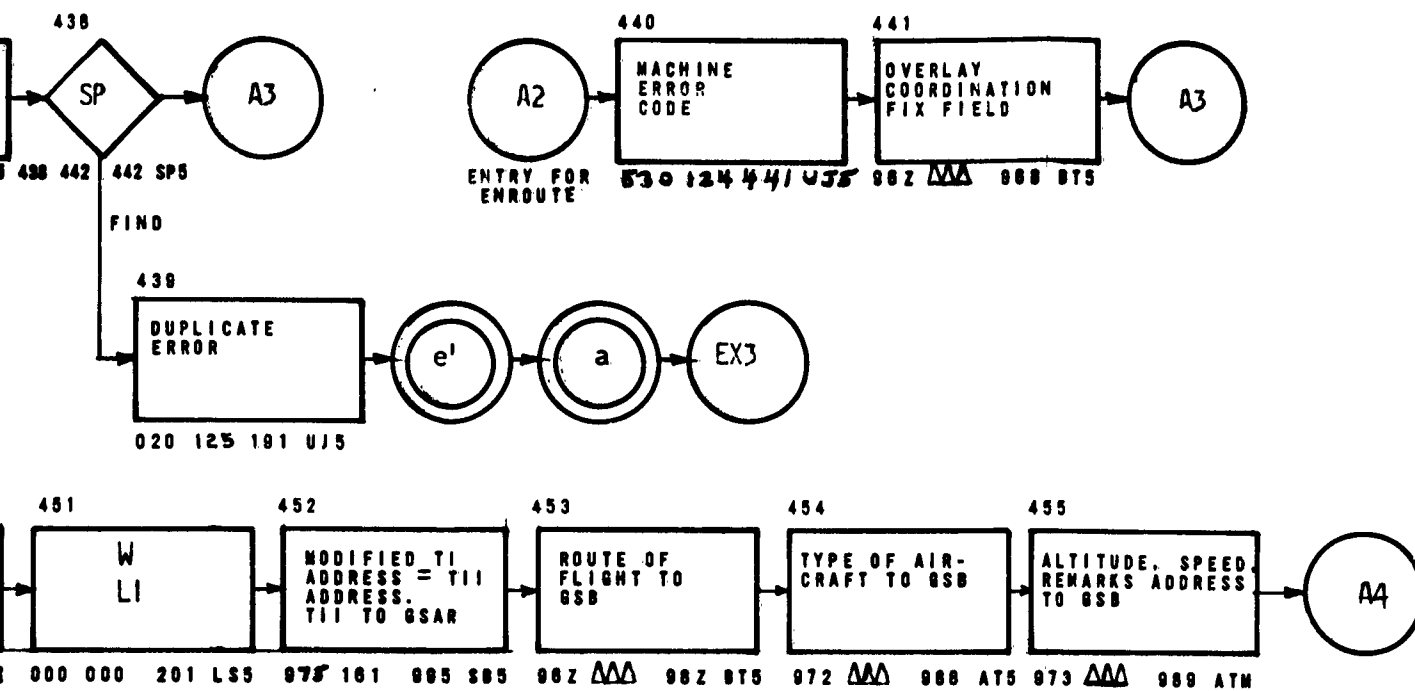
The remarks beside the above constants, factors and working storages define the prime purpose as used in this routine. The flow charts will define any secondary usage of these locations.

APPENDIX V

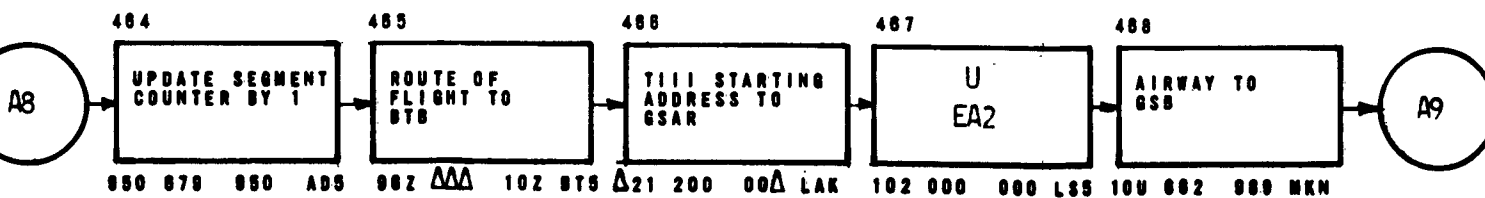
AIRWAY ROUTINE

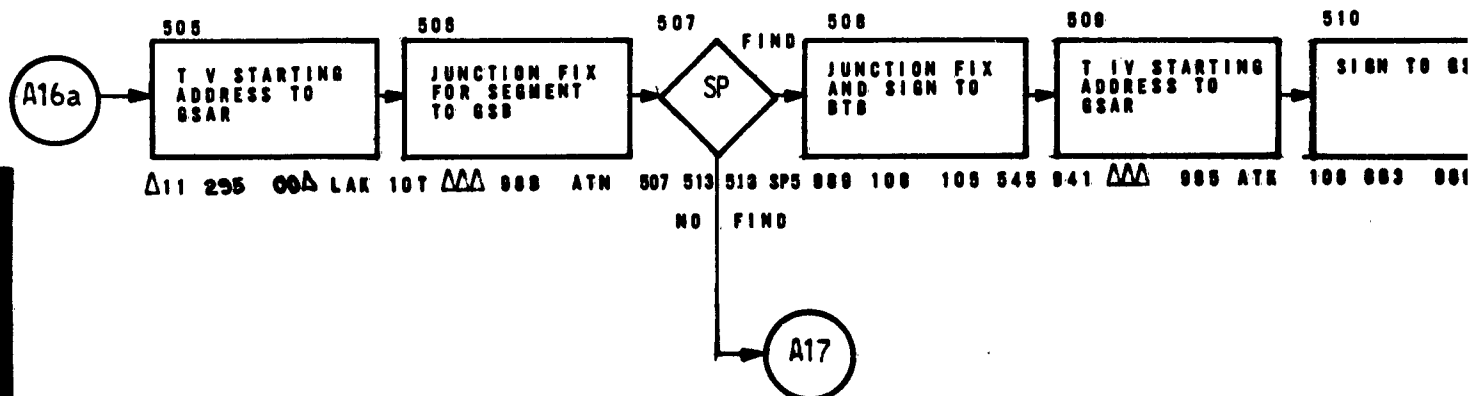
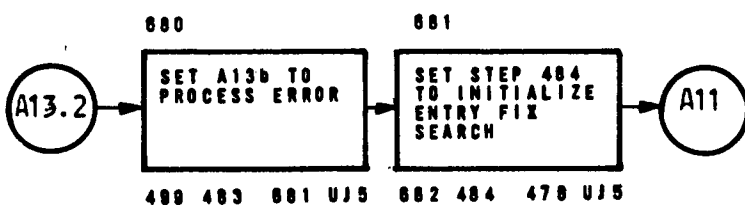
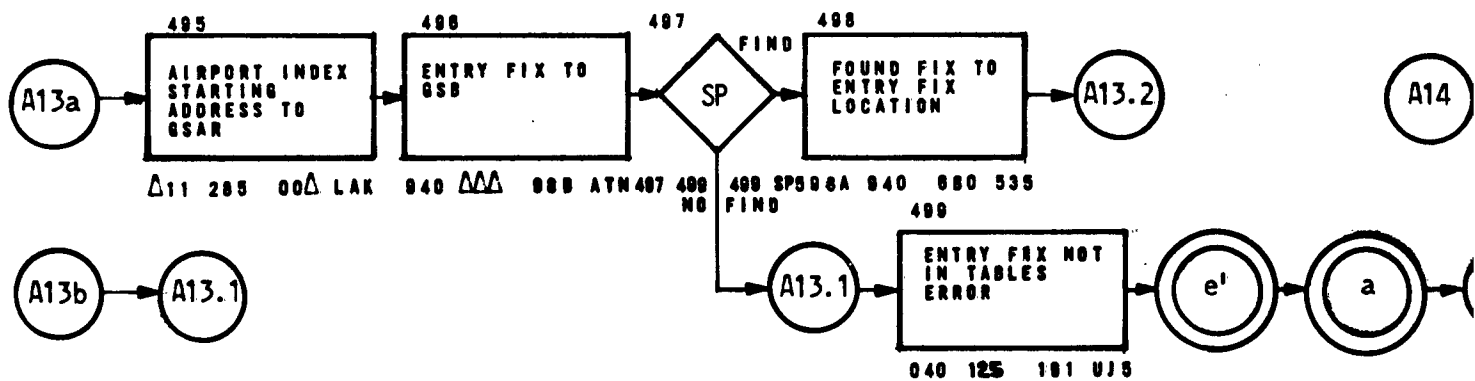
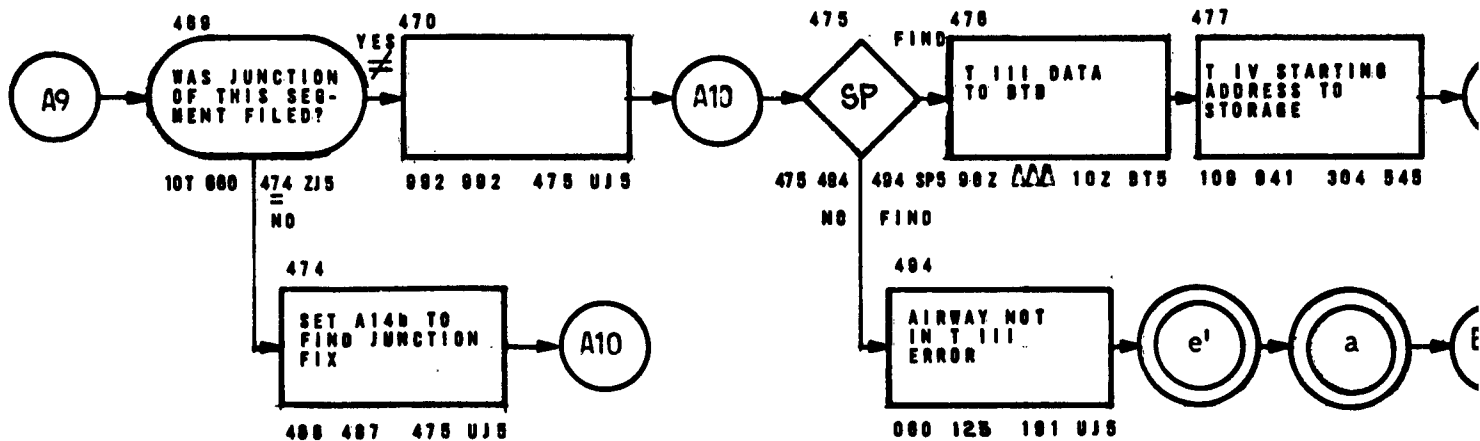


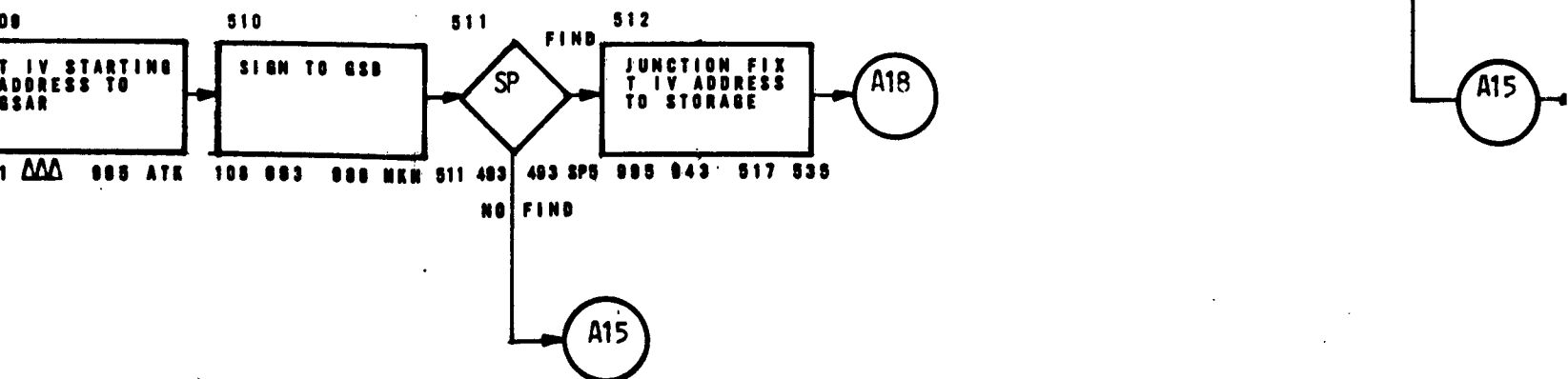
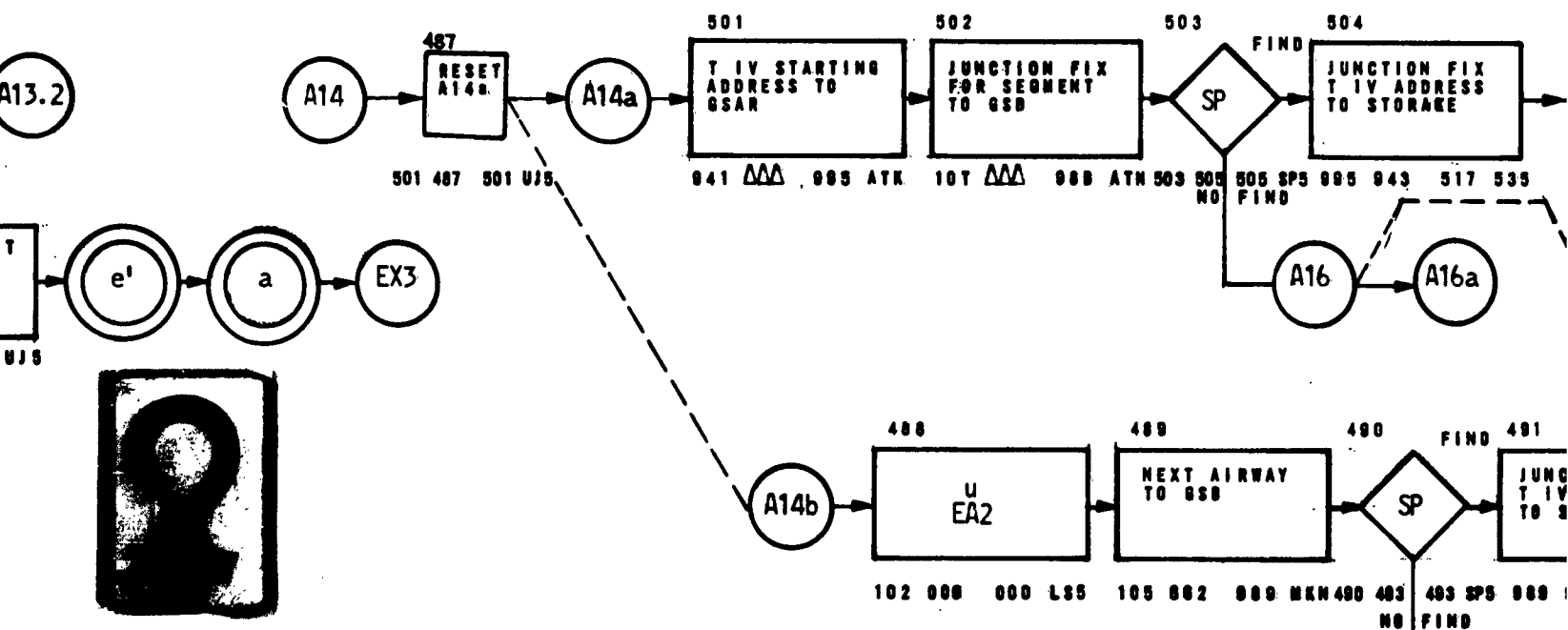
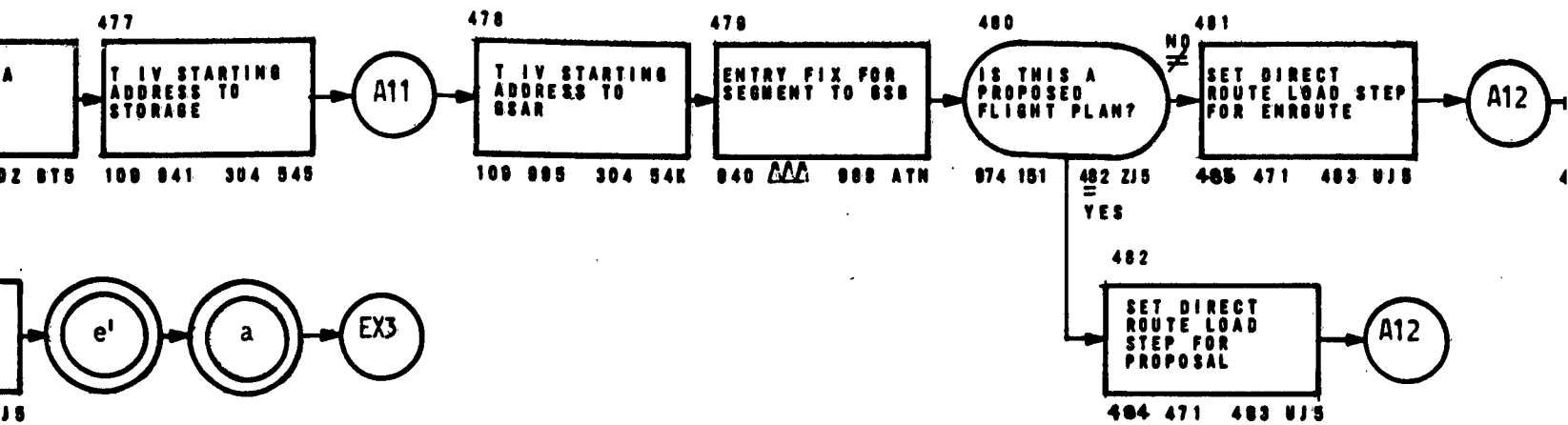


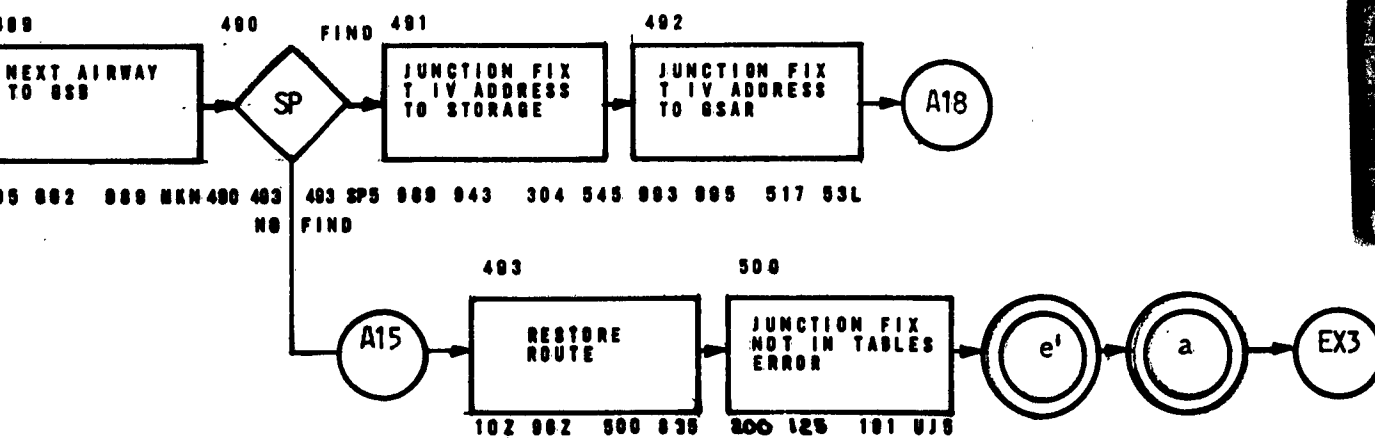
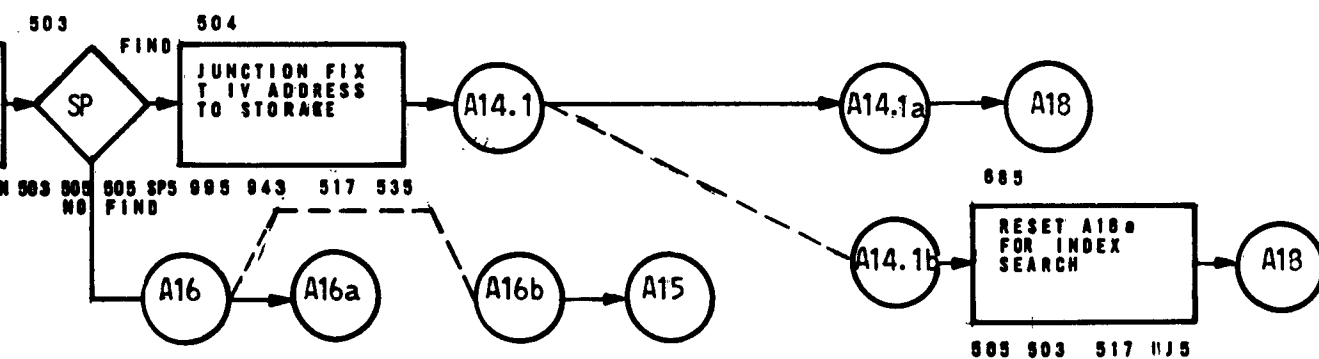
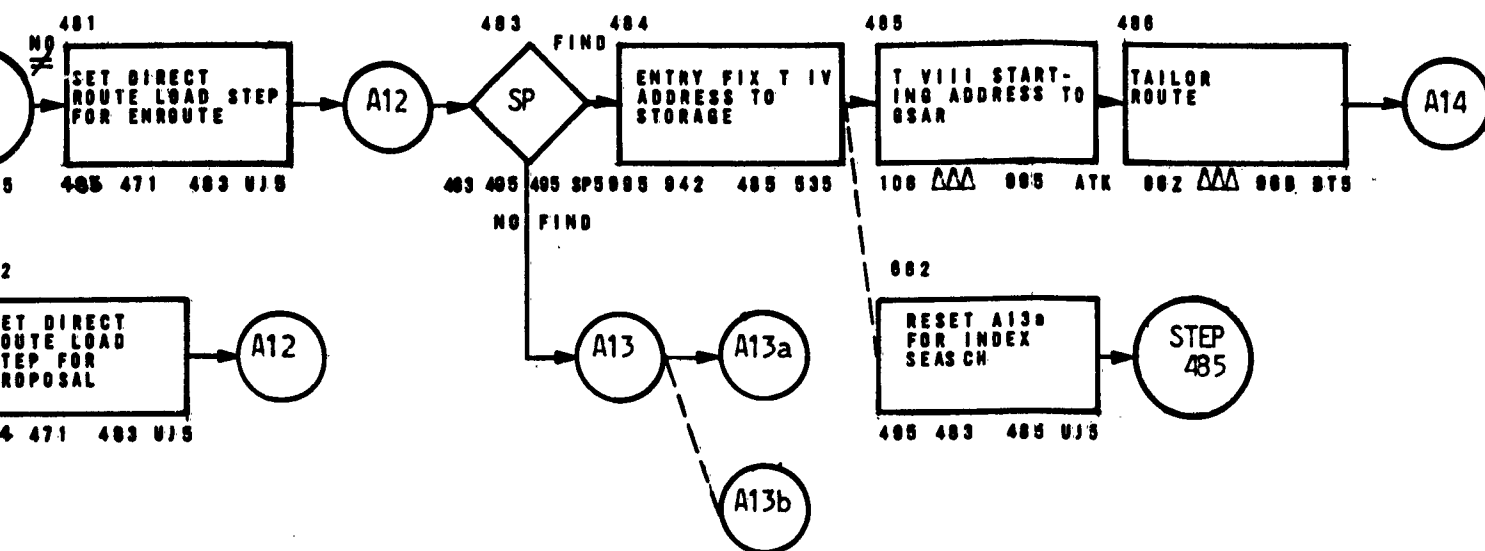


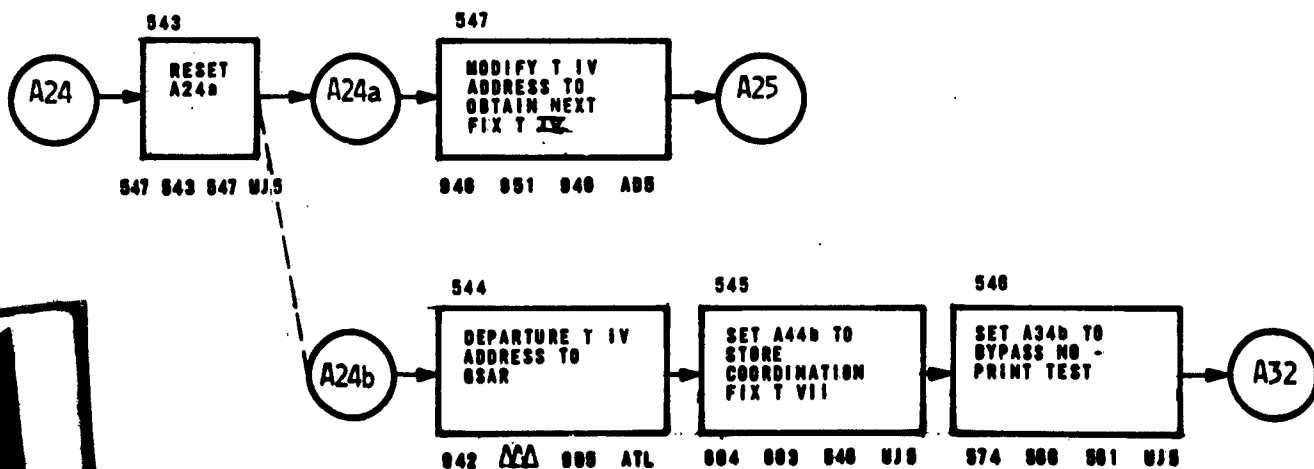
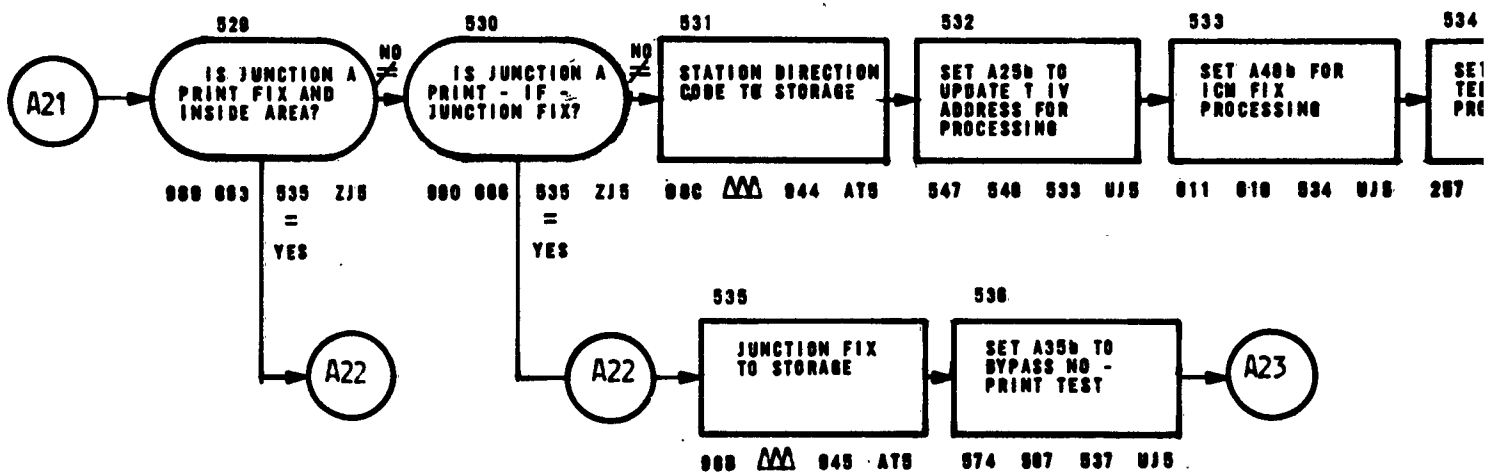
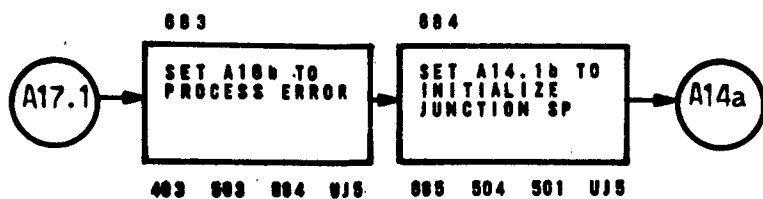
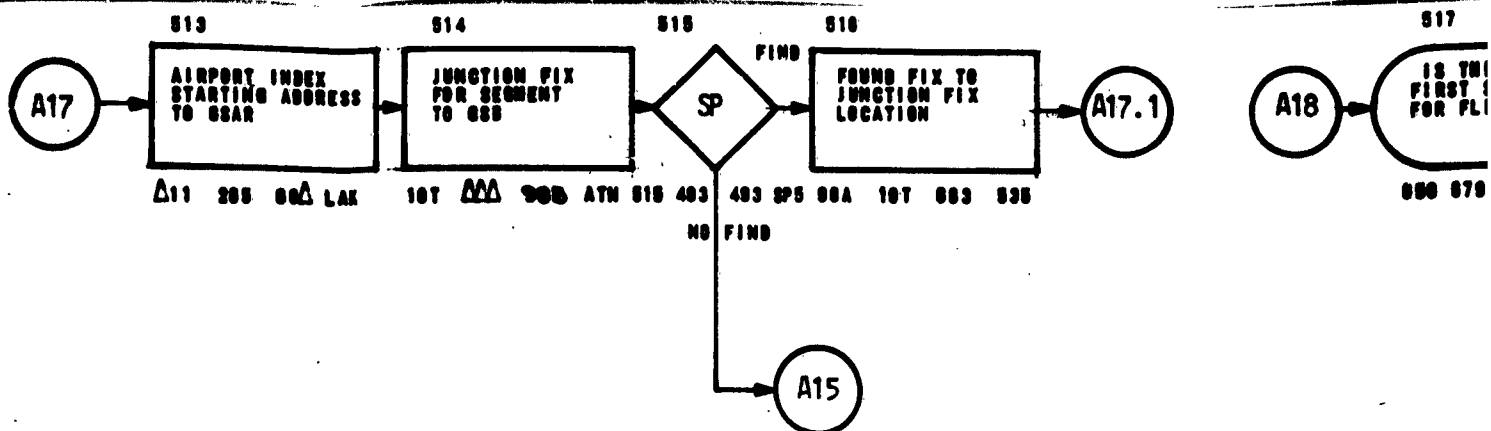
BUILDING TII

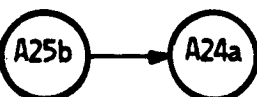
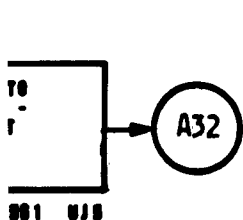
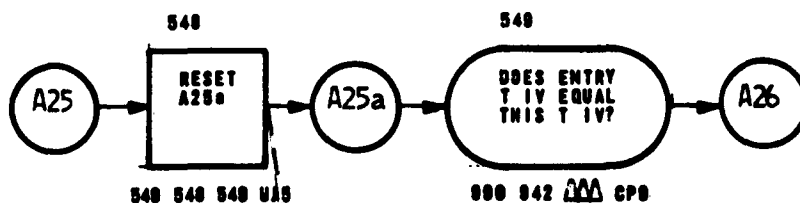
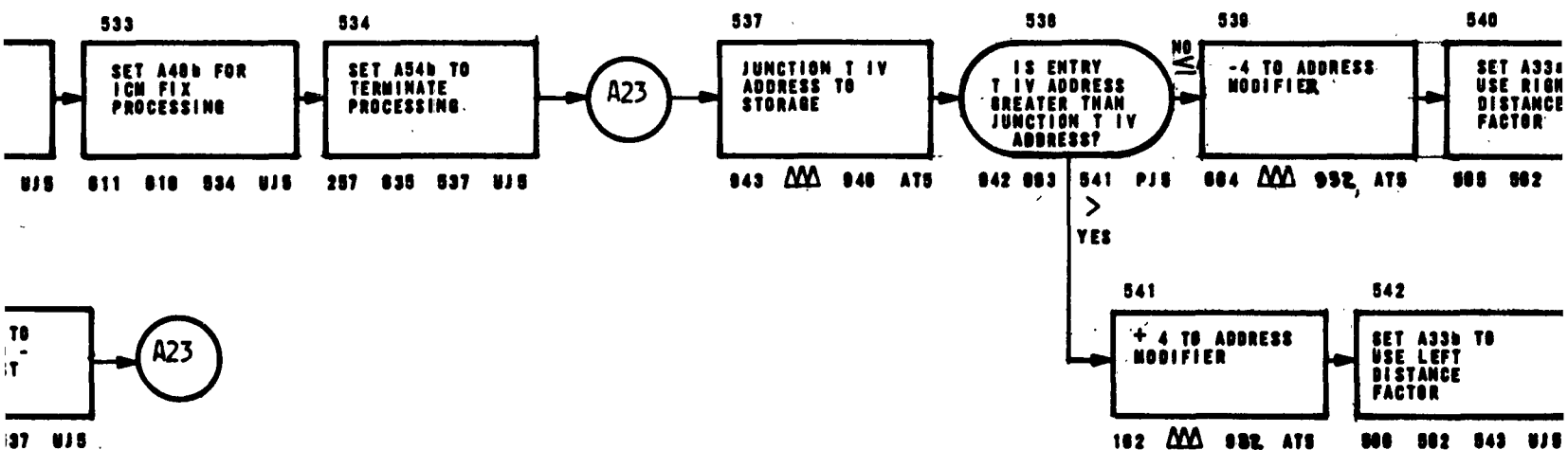
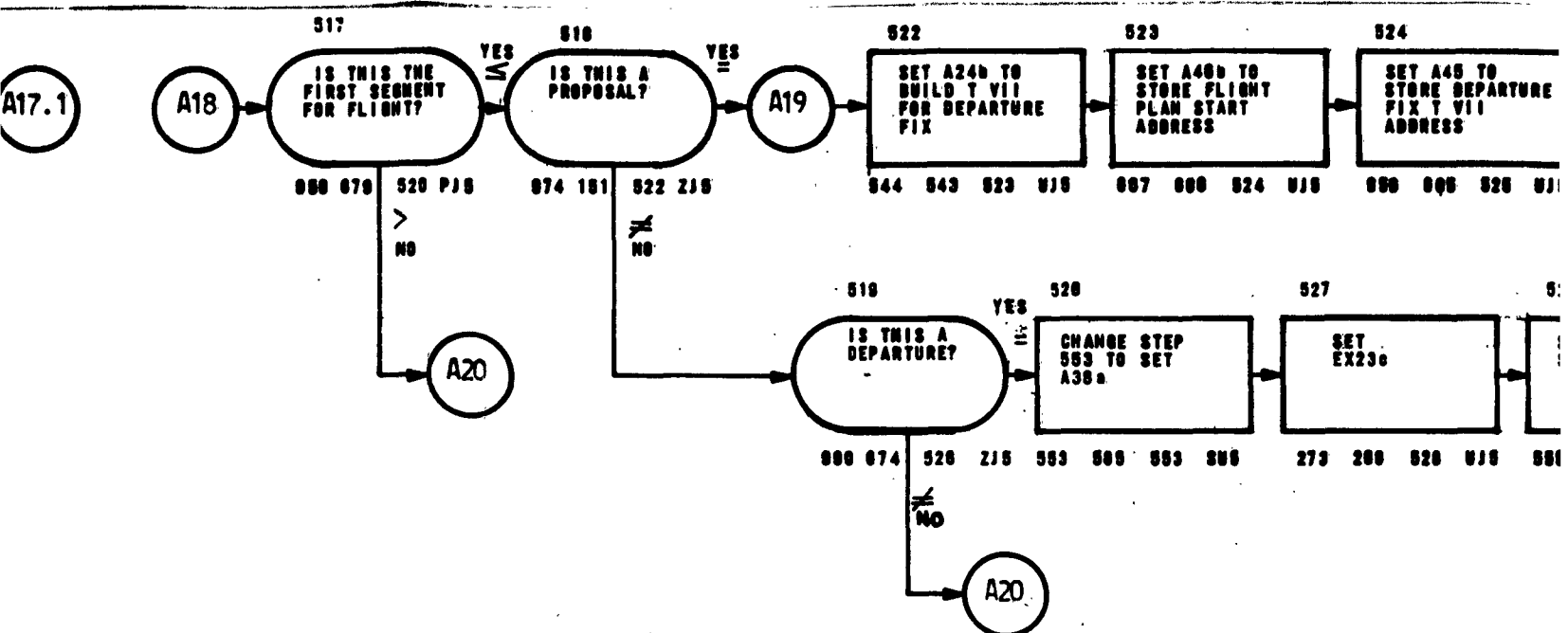


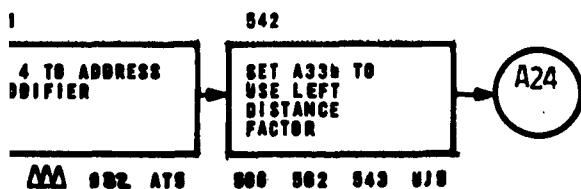
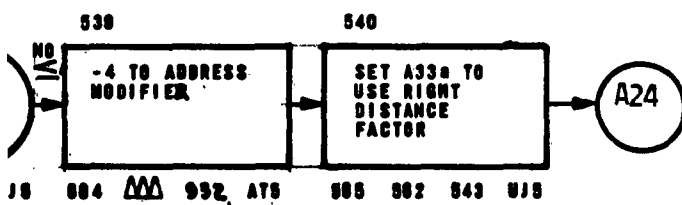
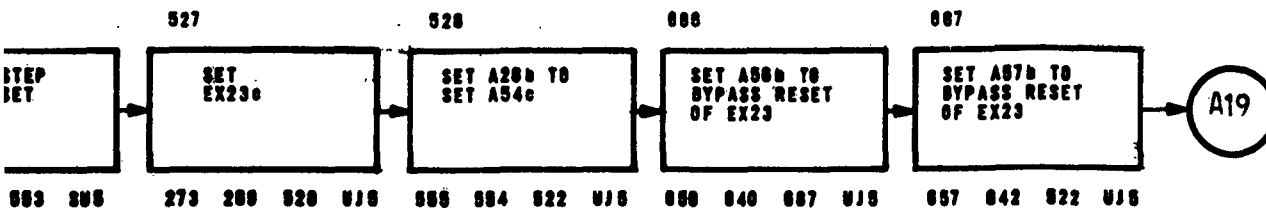
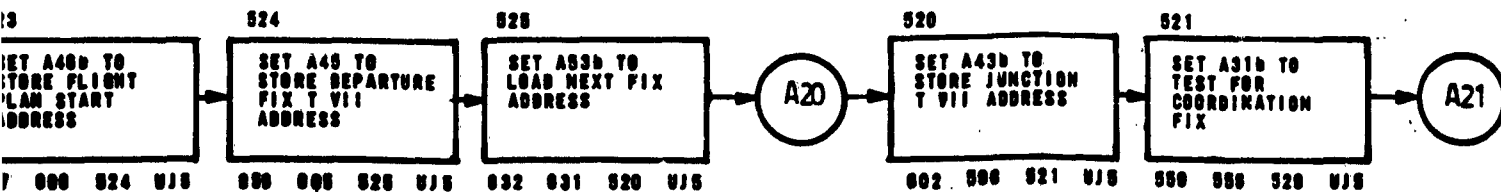


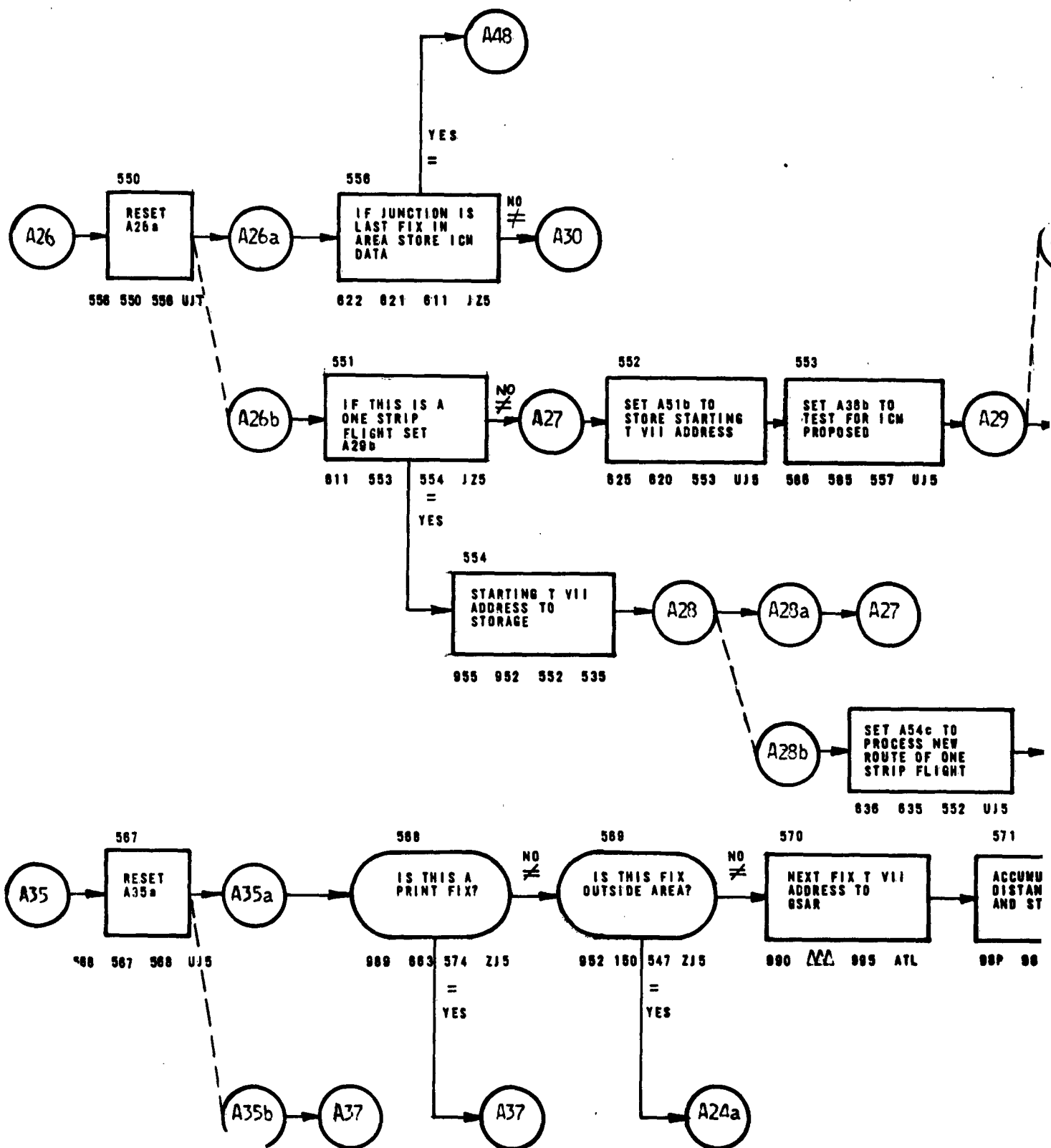


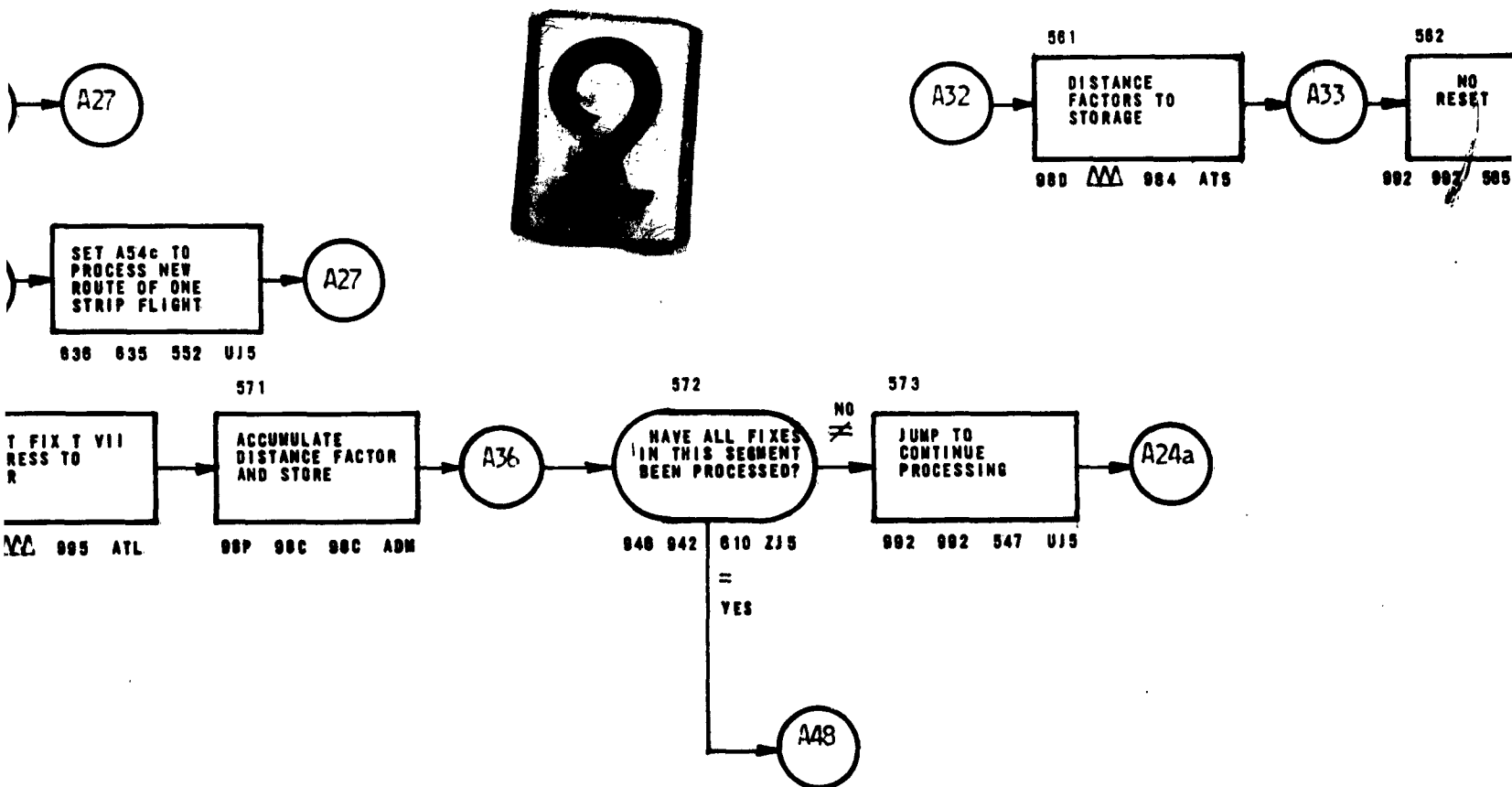
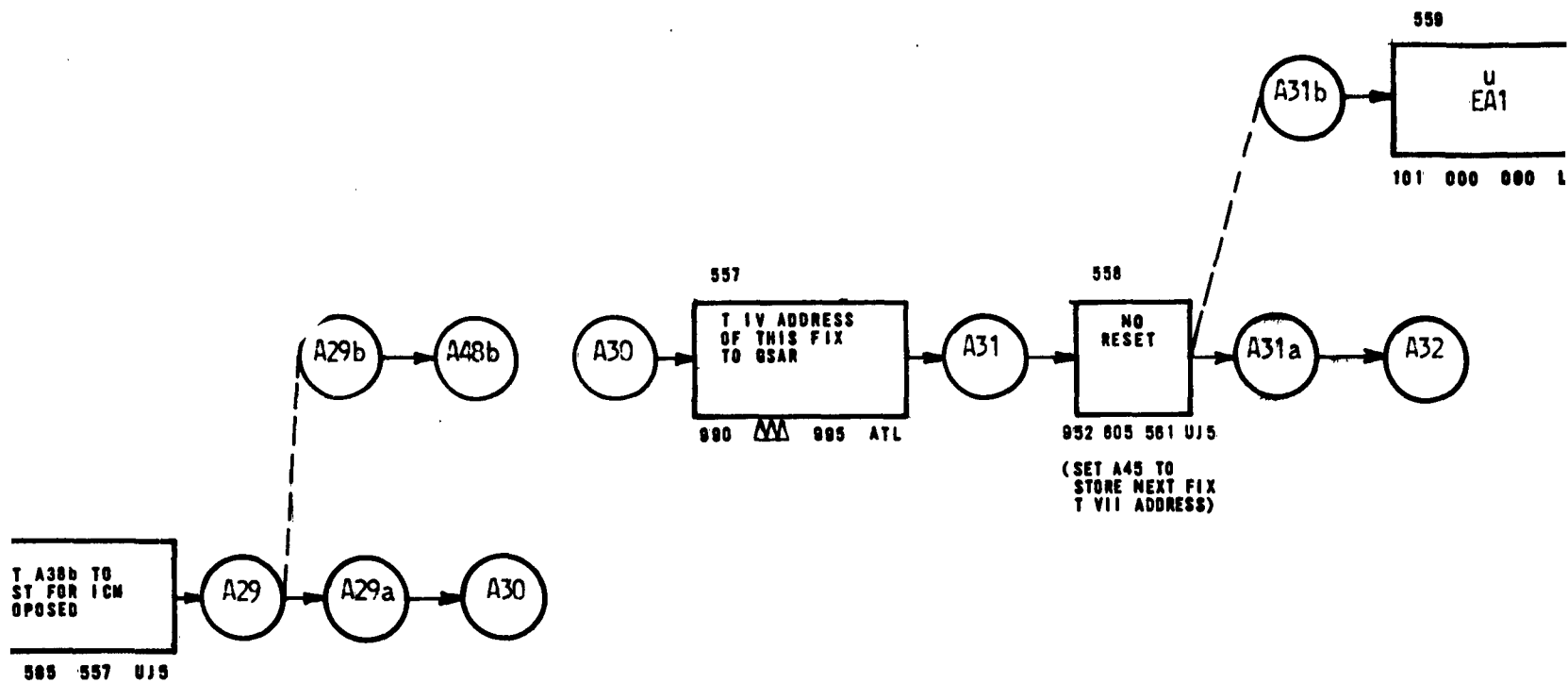


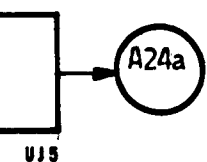
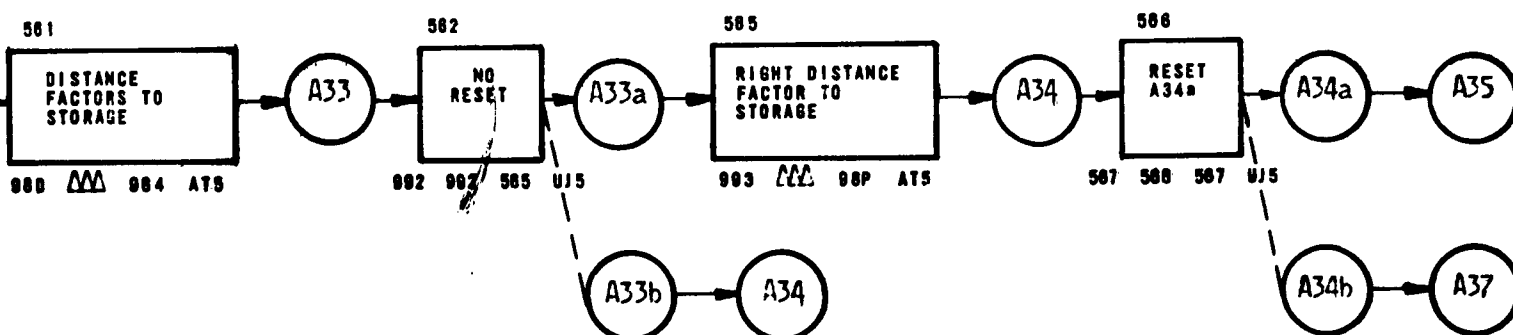
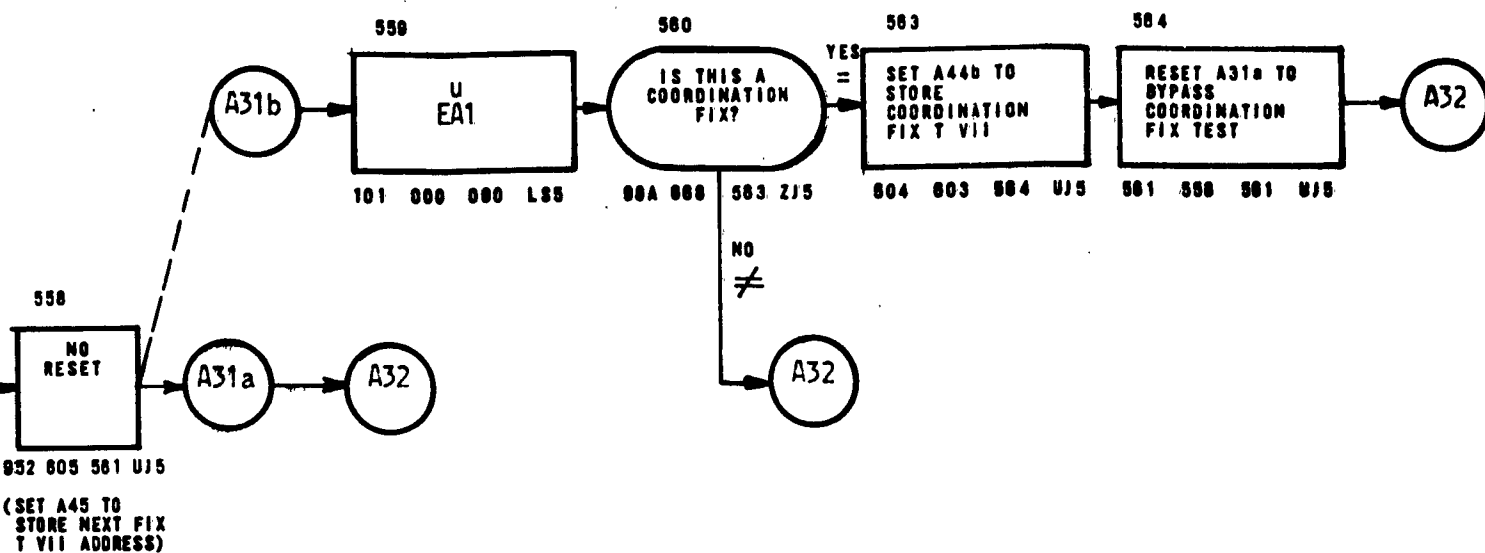


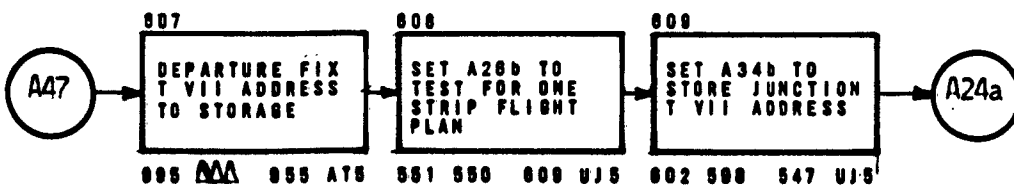
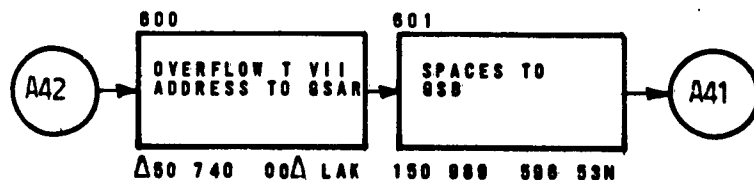
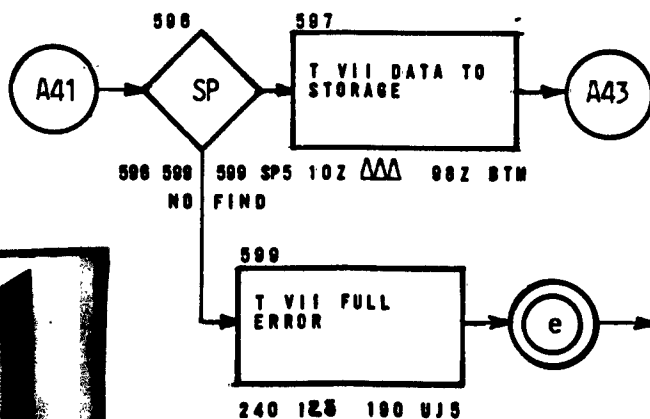
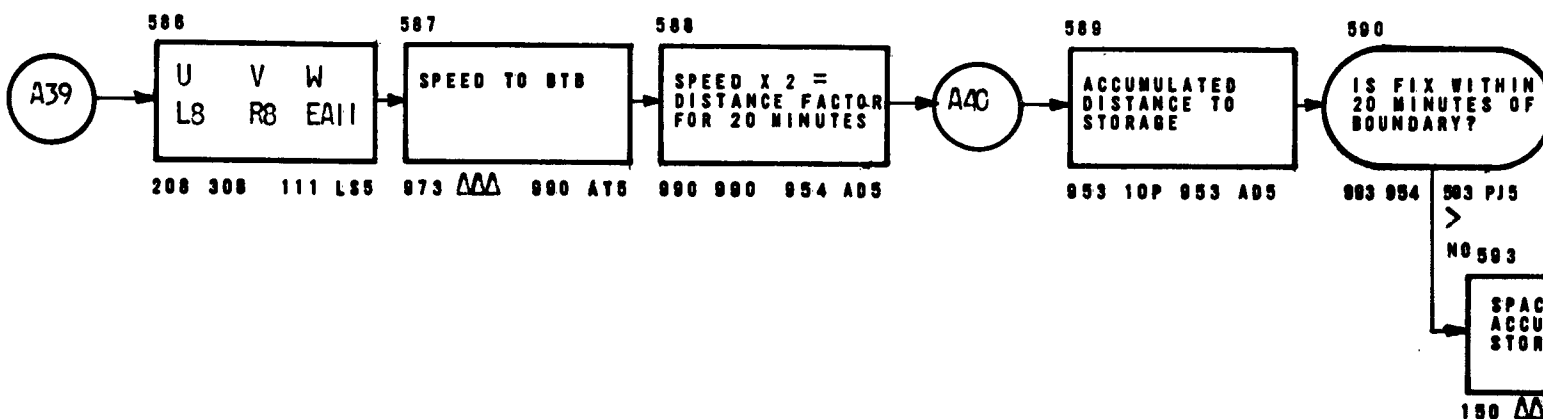
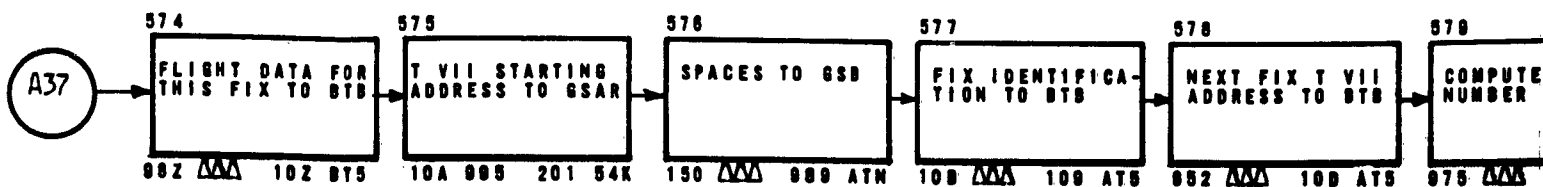


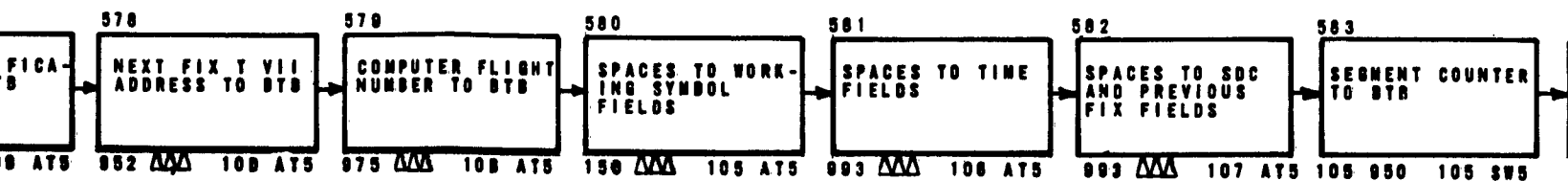




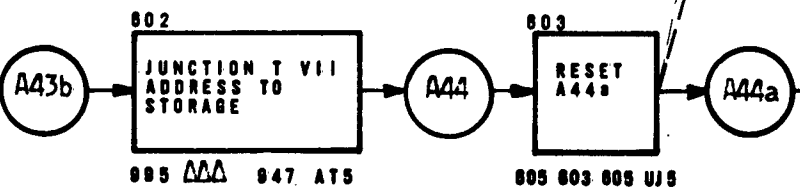
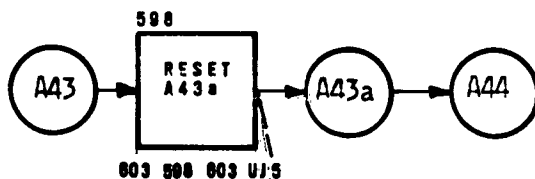
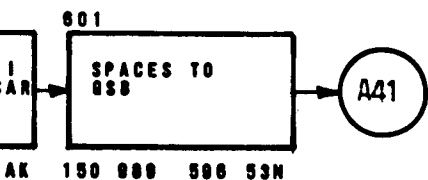
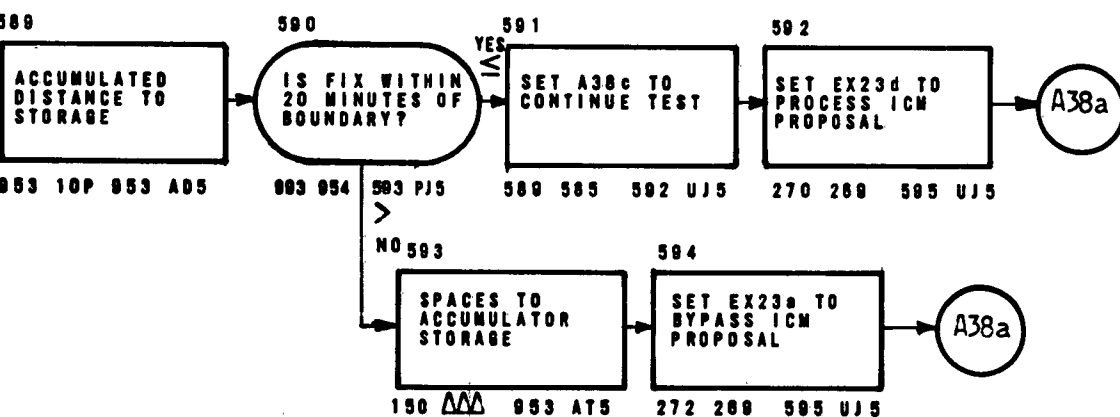


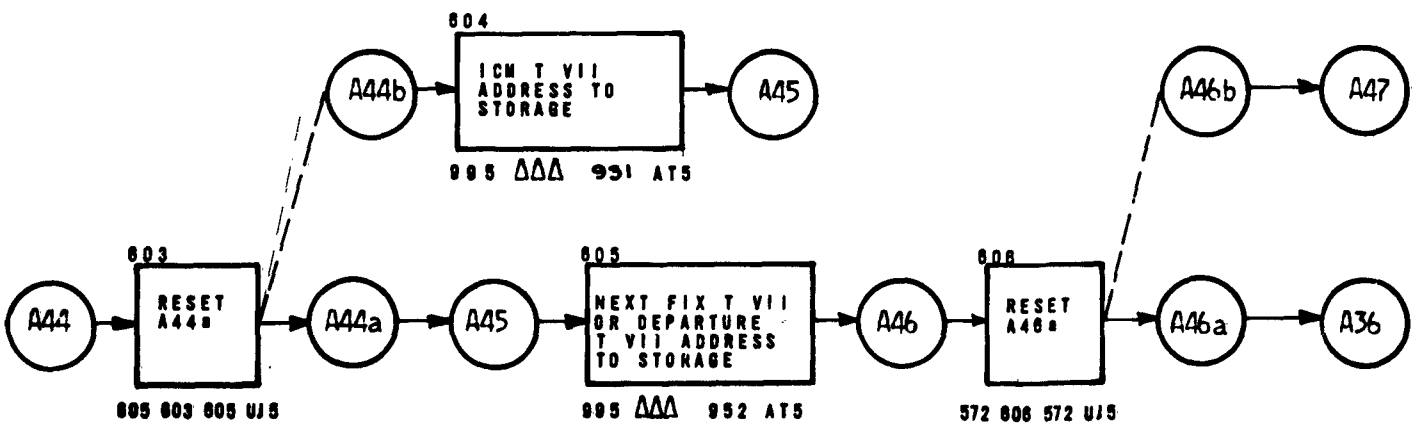
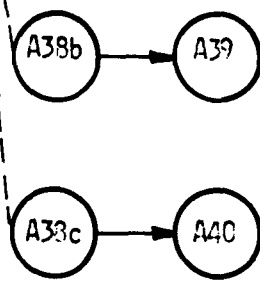
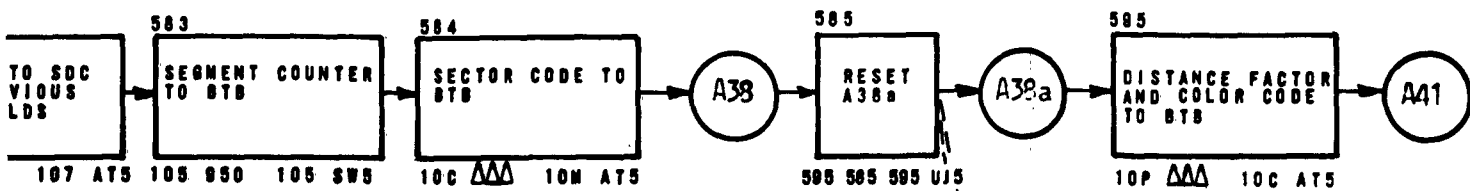


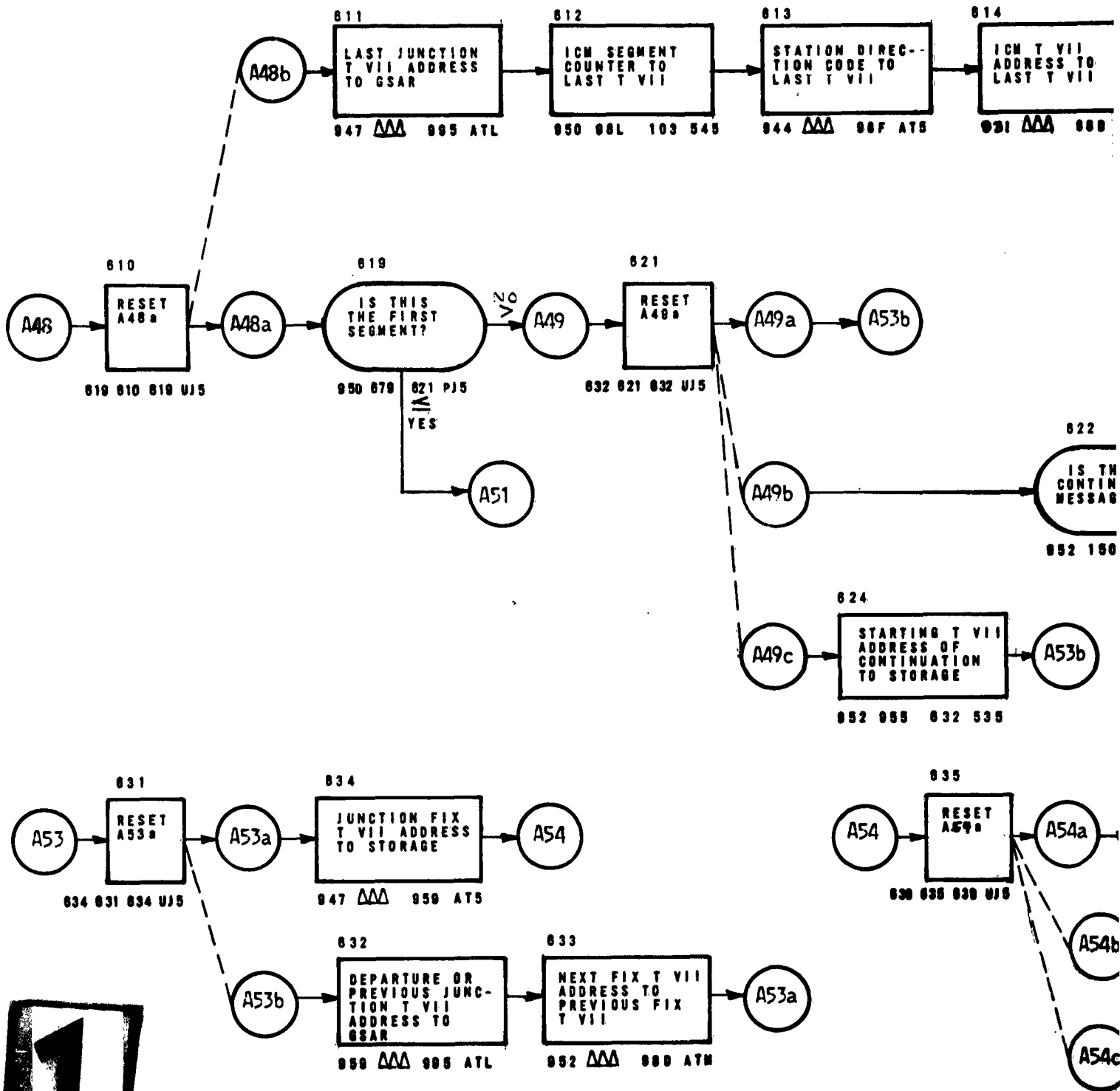


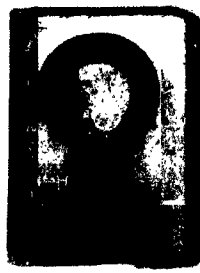
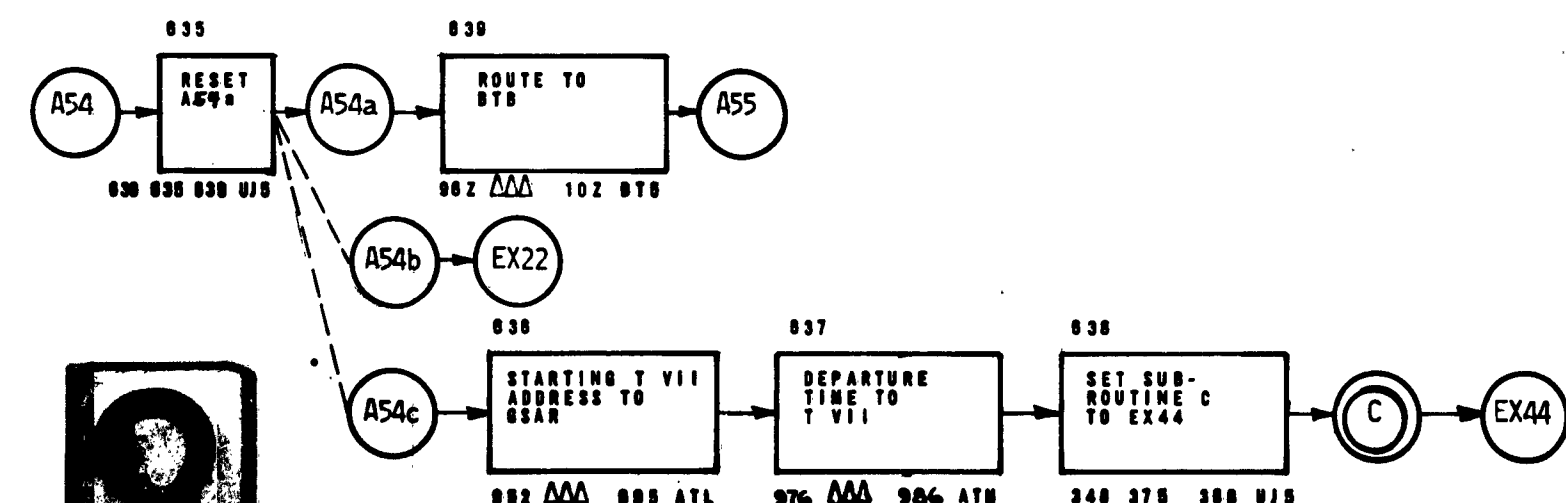
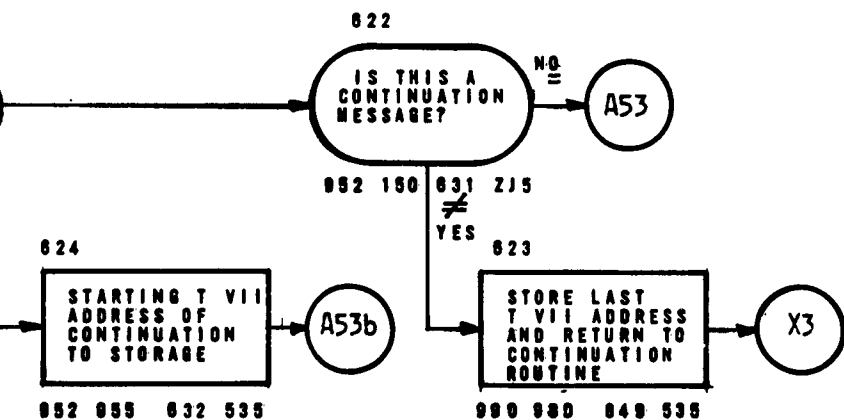
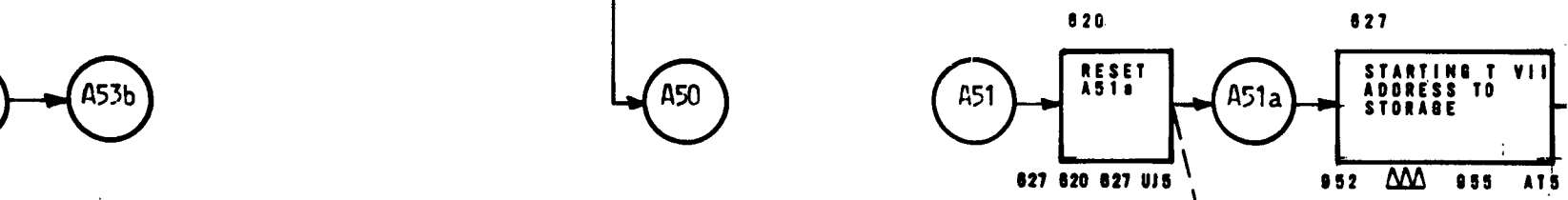
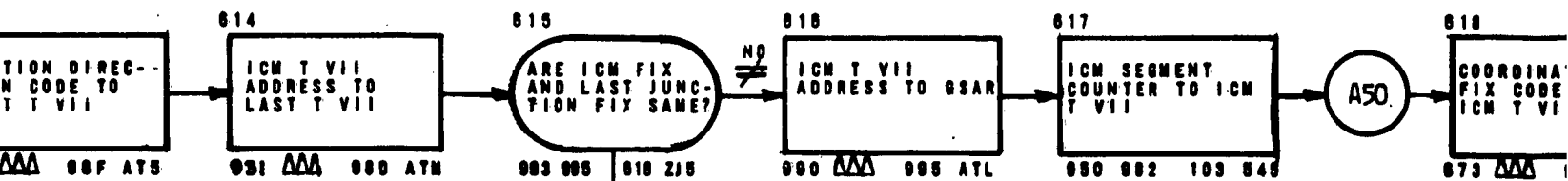


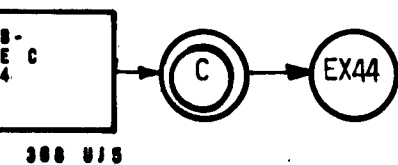
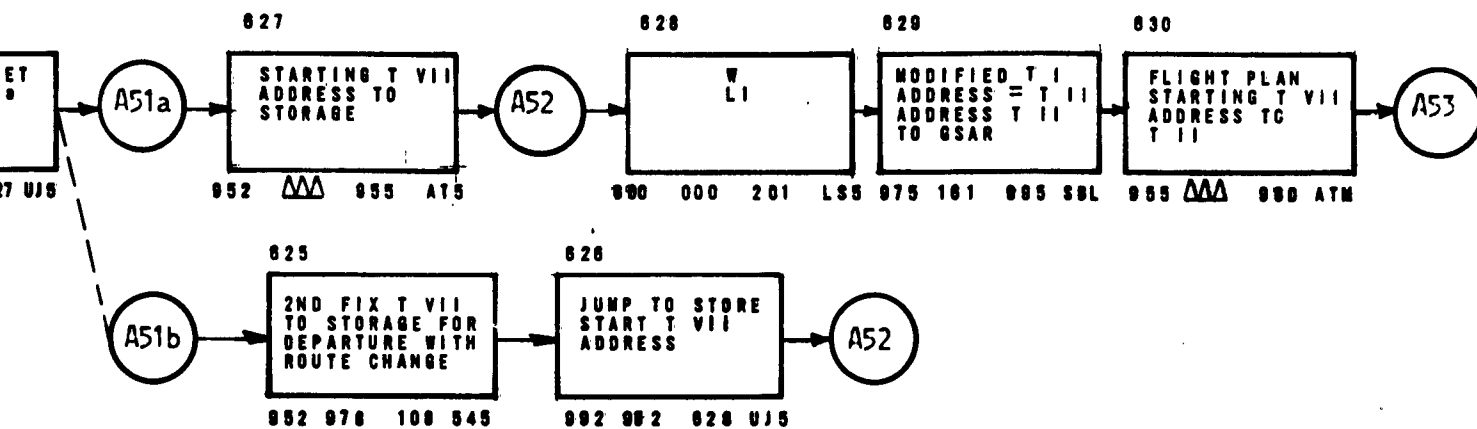
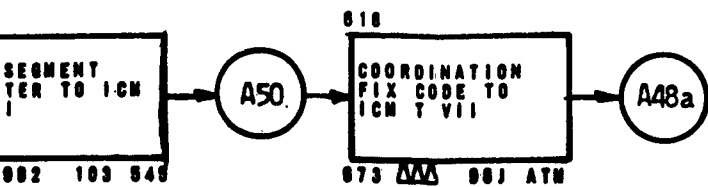
BUILDING T VII

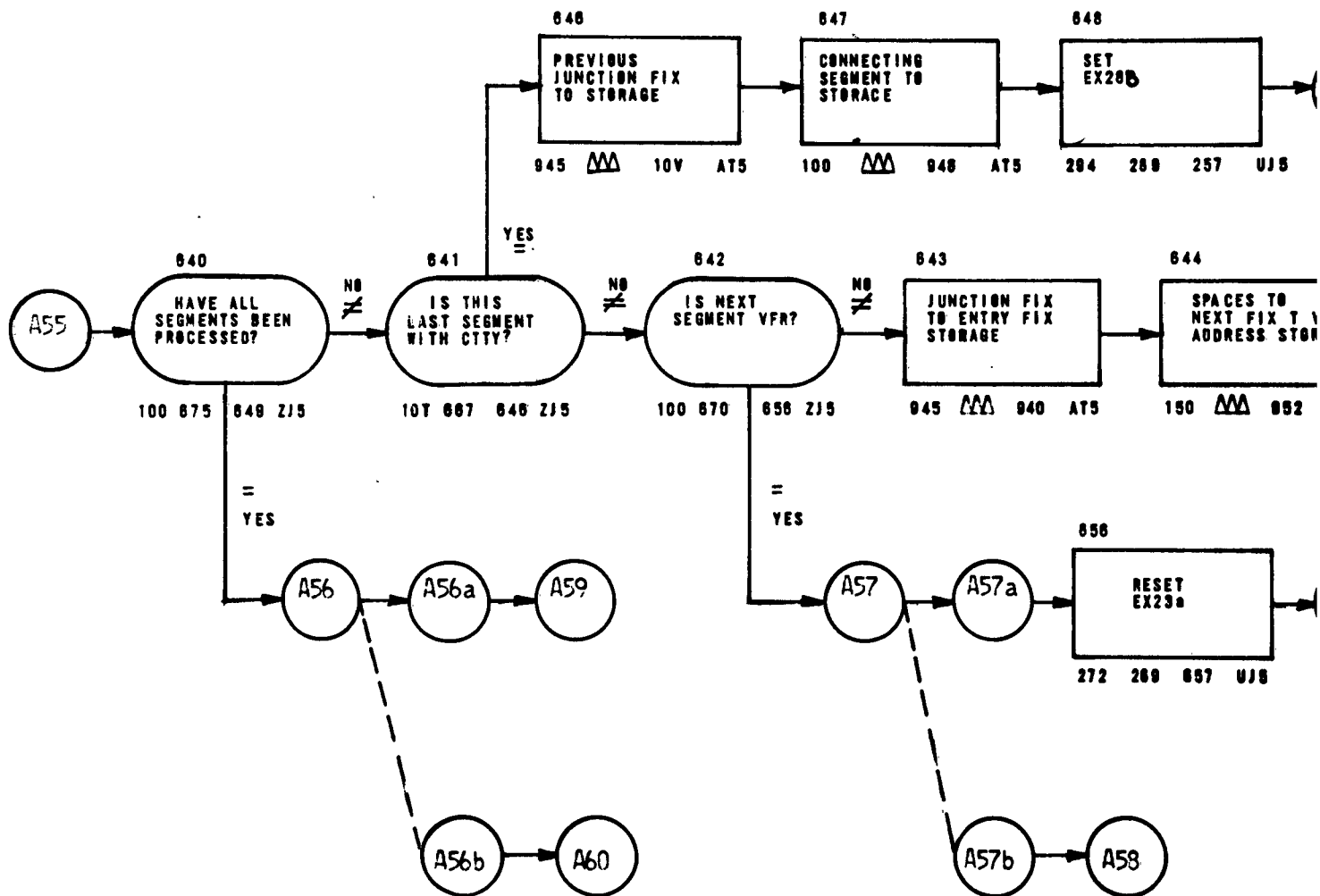


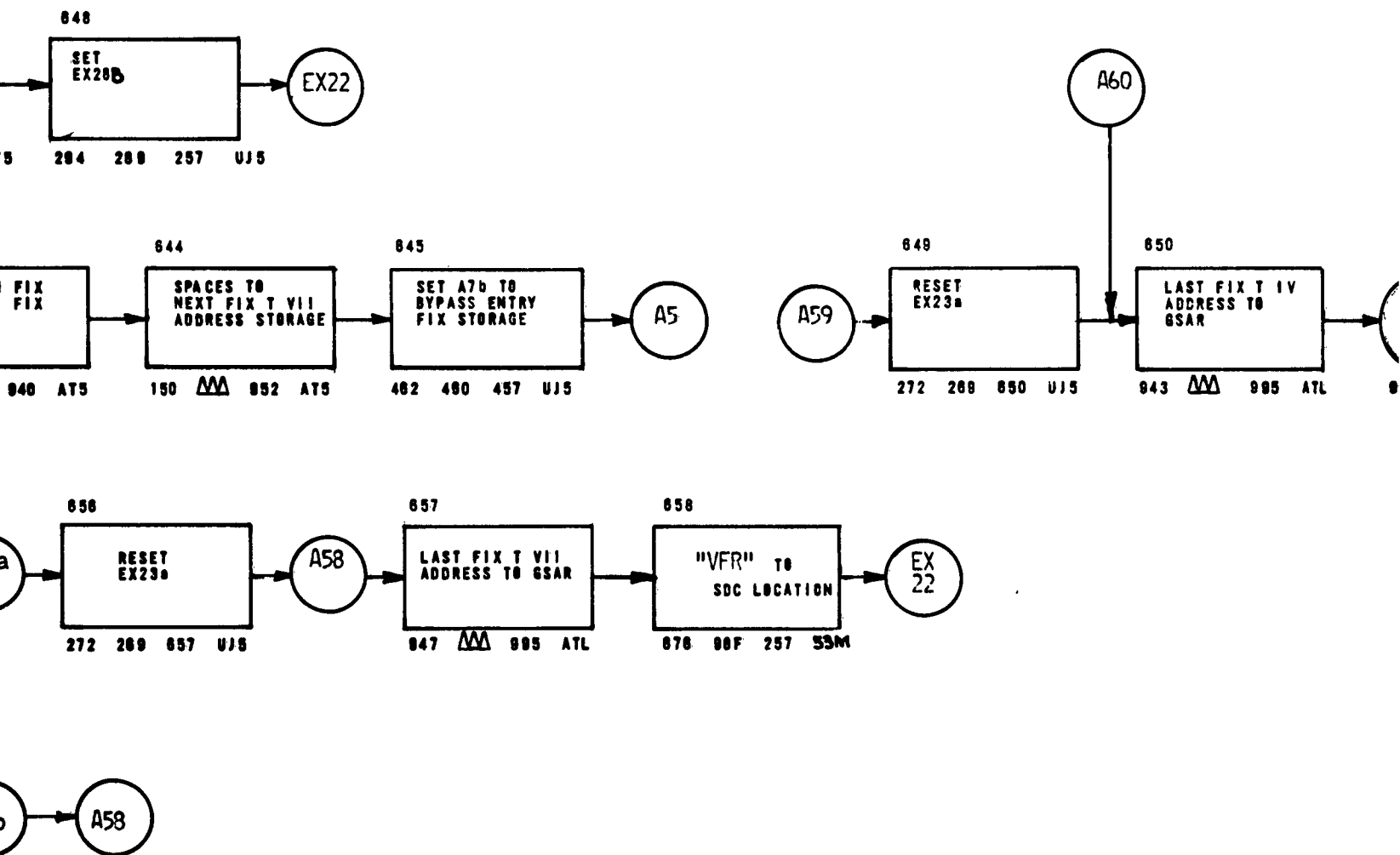


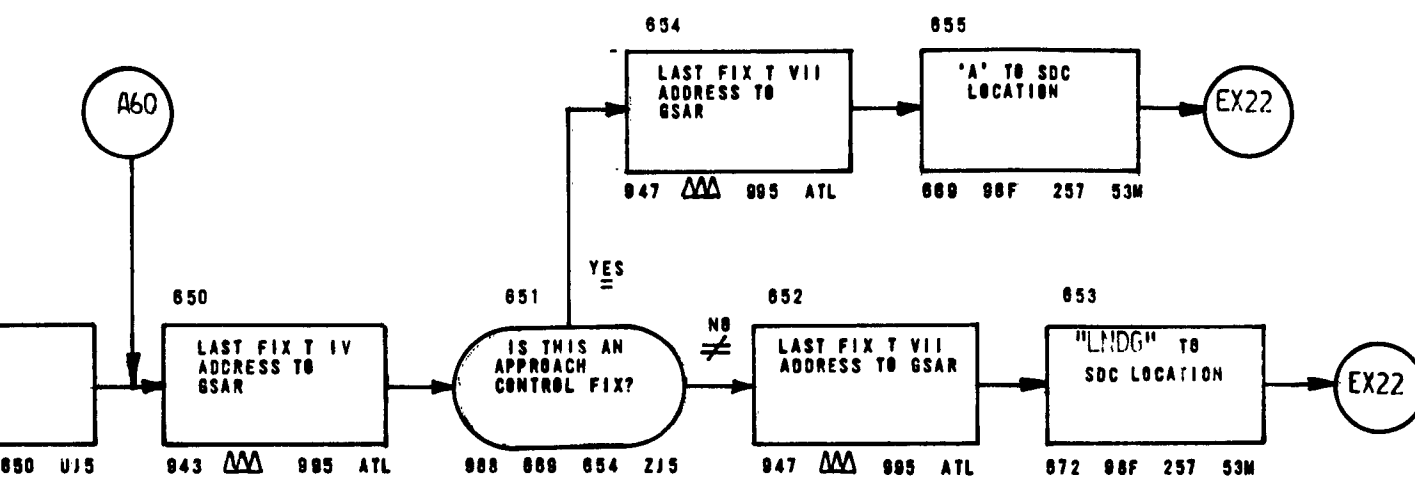












CONSTANTS AND FACTORS

150	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	"SPACES" COMPARATOR
151	i	i	i	i	i	i	P	i	i	i	i	i	PROPOSED COMPARATOR
161	Ø	Ø	Ø	Ø	1	Ø	1	Ø	Ø	Ø	Ø	Δ	TI MODIFIER
162	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	4	+	" +4" ADDRESS MODIFIER
183	8	Ø	Z	Δ	Ø	1	1	4	6	Ø	Ø	Δ	DIRECT ROUTINE LOAD FACTOR
660	i	i	i	i	i	i	i	i	*	i	i	i	"FILED JUNCTION" COMPARATOR
662	i	i	i	i	i	i	i	Δ	Δ	Δ	Δ	Δ	MASKING FACTOR
663	i	i	i	i	Δ	i	i	i	i	i	i	i	"JUNCTION INSIDE" COMPARATOR
664	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	4	-	" -4" ADDRESS MODIFIER
666	i	i	i	i	9	i	i	i	i	i	i	i	"PRINT IF JUNCTION" COMPARATOR
667	i	i	i	i	i	i	i	i	C	T	T	Y	"CONTINUATION" COMPARATOR
668	6	i	i	i	i	i	i	i	i	i	i	i	"COORDINATION FIX" COMPARATOR
669	i	i	i	i	i	i	i	i	A	i	i	i	"APPROACH CONTROL FIX"
													COMPARATOR
670	i	i	i	i	V	F	R	i	i	i	i	i	"VFR" COMPARATOR
672	i	i	i	i	i	i	i	i	L	N	D	G	"LNDG" FACTOR
673	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	*	"COORDINATION FIX CODE" FACTOR
674	i	i	i	i	i	i	D	i	i	i	i	i	DEPARTURE COMPARATOR
675	i	i	i	i	*	i	i	i	i	i	i	i	DIRECT ROUTE TEST COMPARATOR
676	i	i	i	i	i	i	i	i	V	F	R	i	"VFR" FACTOR
677	i	i	i	i	D	i	i	i	i	i	i	i	DIRECT ROUTE TEST COMPARATOR
678	i	*	i	i	i	i	i	i	i	i	i	i	DIRECT ROUTE TEST COMPARATOR
679	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	1	Ø	Ø	Ø	SEGMENT COUNTER COMPARATOR

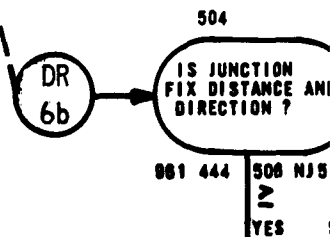
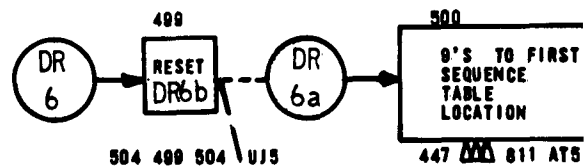
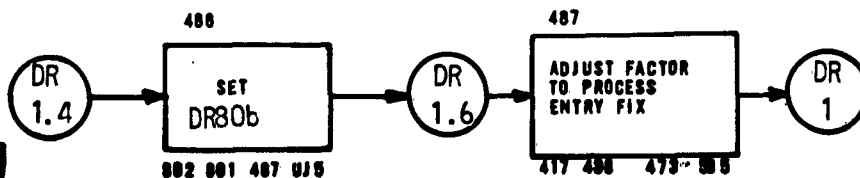
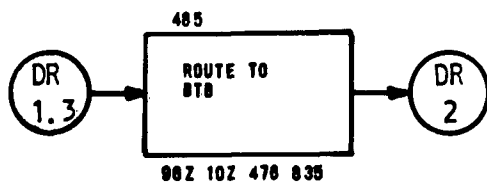
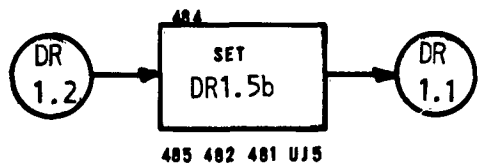
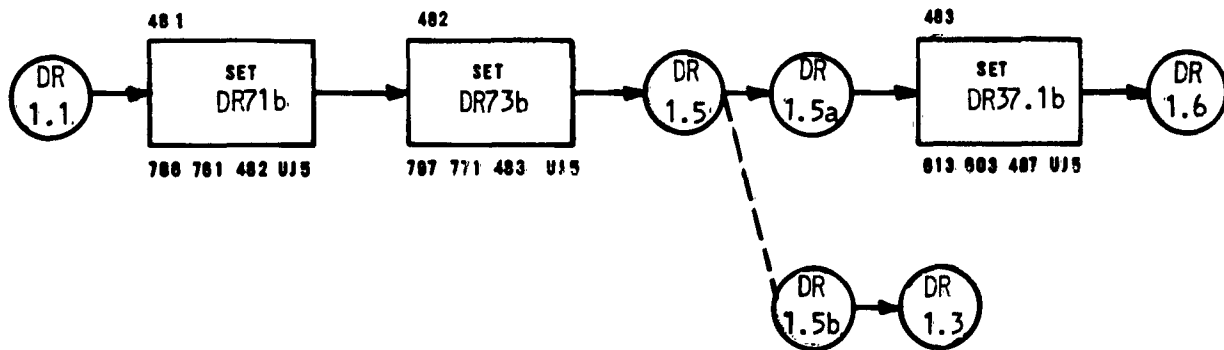
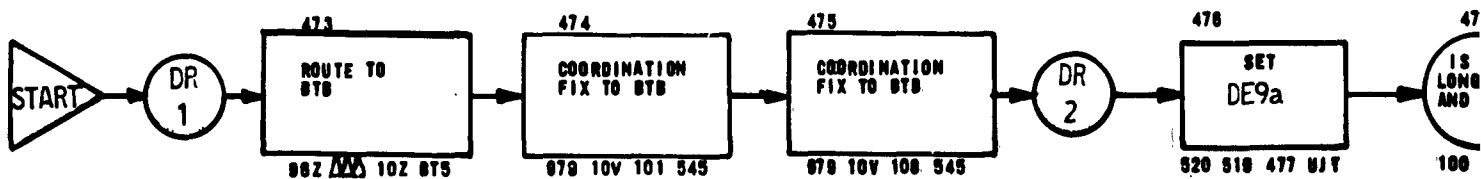
WORKING STORAGE LOCATIONS

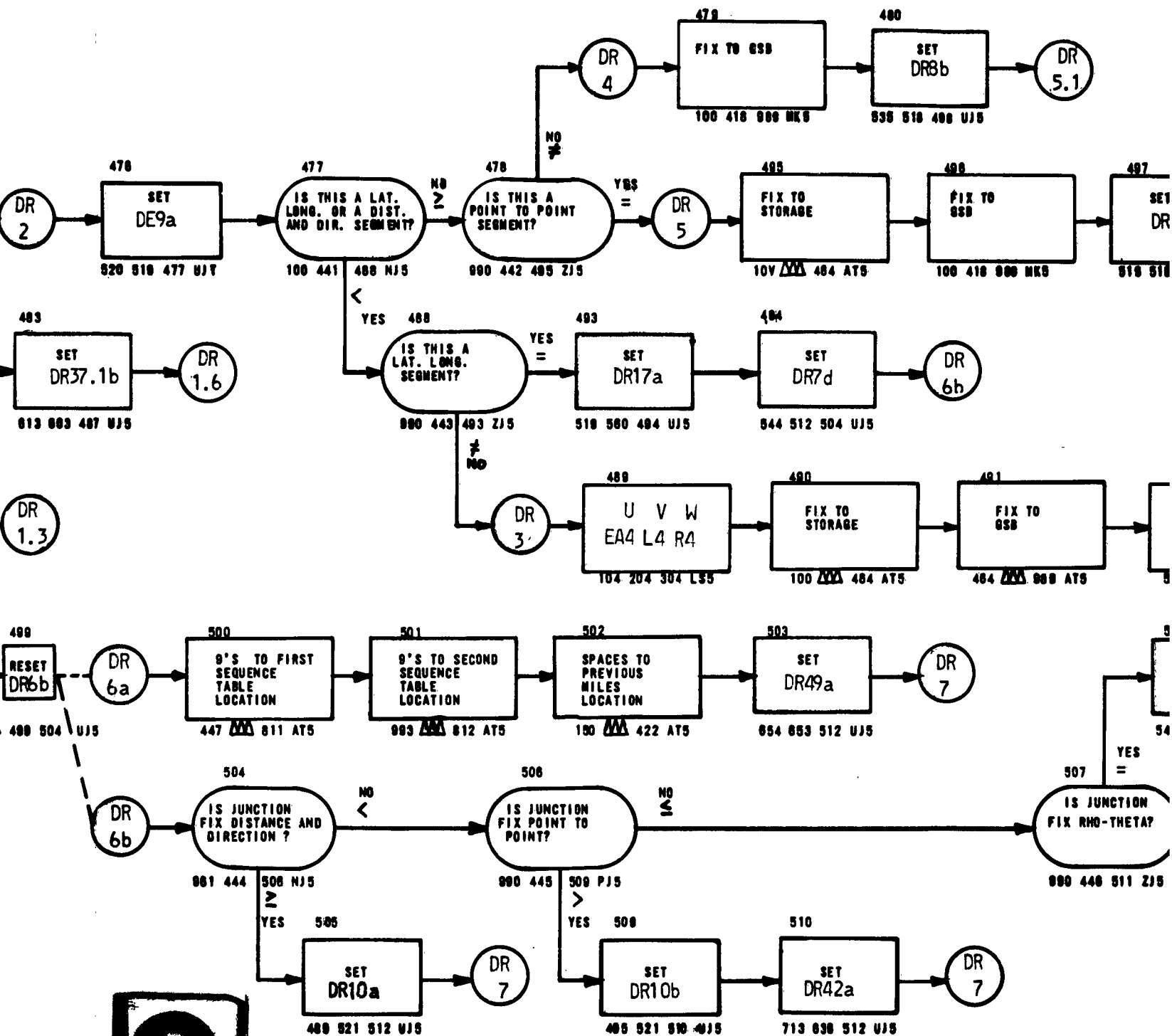
931	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	COORDINATION FIX T VII ADDRESS
940	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	X	X	X	X	ENTRY FIX FOR AIRWAY ROUTINE
941	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	T IV STARTING ADDRESS
942	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	ENTRY FIX T IV ADDRESS
943	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	JUNCTION FIX T IV ADDRESS
944	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	X	X	X	X	STATION DIRECTION CODE
945	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	X	X	X	X	JUNCTION FIX FOR AIRWAY ROUTINE
946	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	MODIFIED T IV ADDRESS
947	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	JUNCTION FIX T VII ADDRESS
950	Ø	Ø	Ø	Ø	Ø	Ø	X	X	X	Ø	Ø	Ø	SEGMENT COUNTER
932	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	4	+	ADDRESS MODIFIER
952	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	NEXT FIX T VII ADDRESS
953	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	X	X	X	X	ACCUMULATED DISTANCE
954	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	X	X	X	Δ	DISTANCE COMPARATOR
955	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	STARTING T VII ADDRESS
959	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	Δ	PREVIOUS JUNCTION TVII ADDRESS
948	X	X	X	X	X	X	X	X	X	X	X	X	LAST SEGMENT OF ROUTE

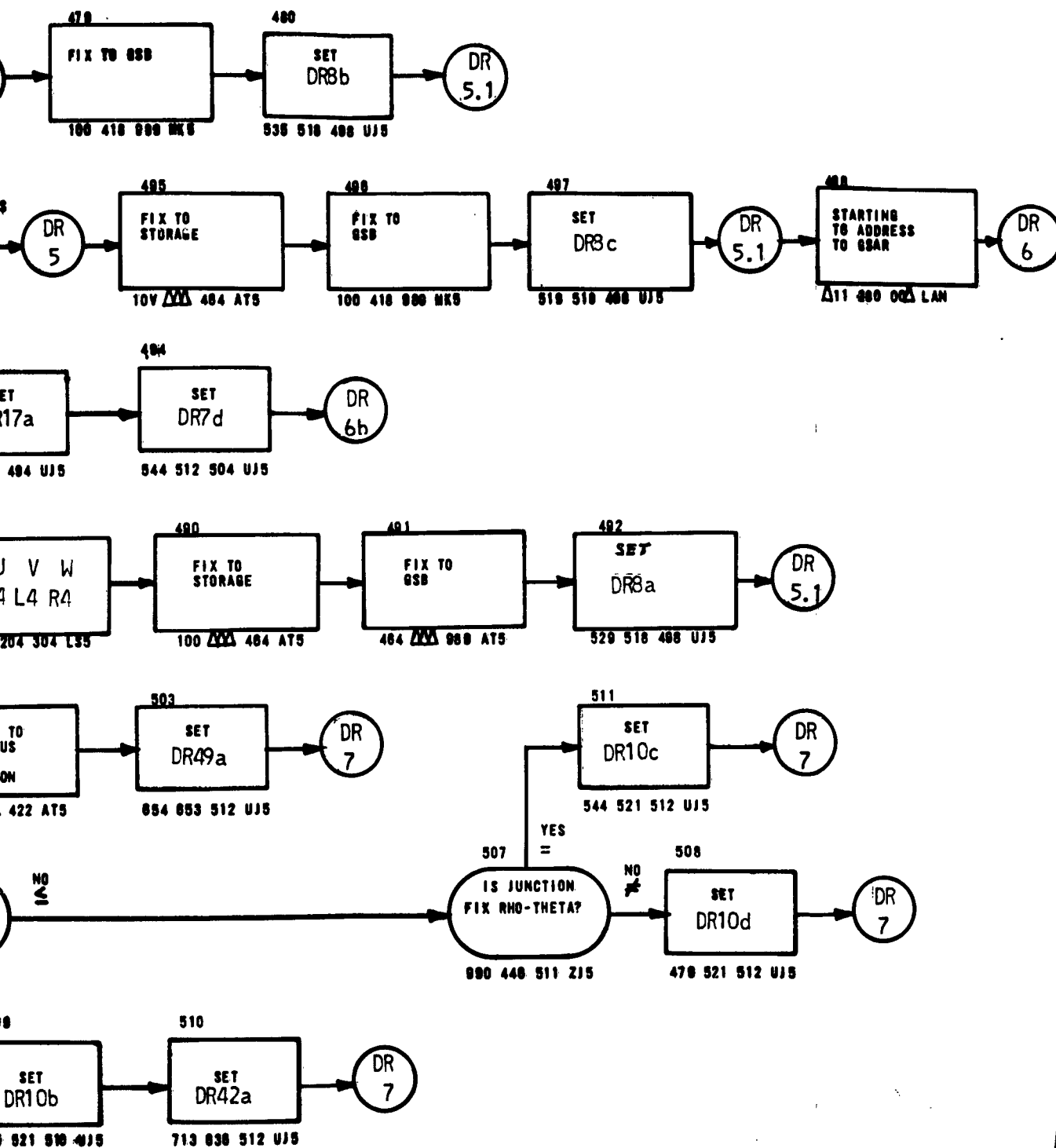
NOTE: THE REMARKS BESIDE THE CONSTANTS, FACTORS AND WORKING STORAGES DEFINE THE PRIME PURPOSE AS USED IN THIS ROUTINE. THE FLOW CHARTS WILL DEFINE ANY SECONDARY USAGE OF THESE LOCATIONS.

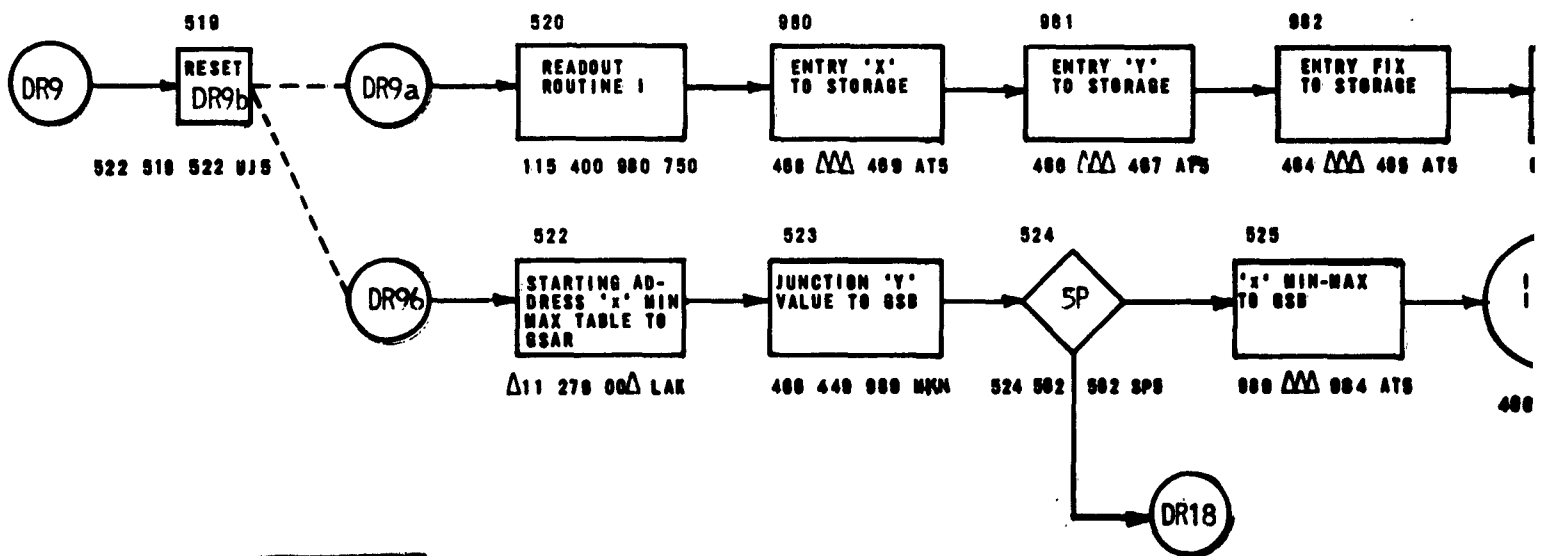
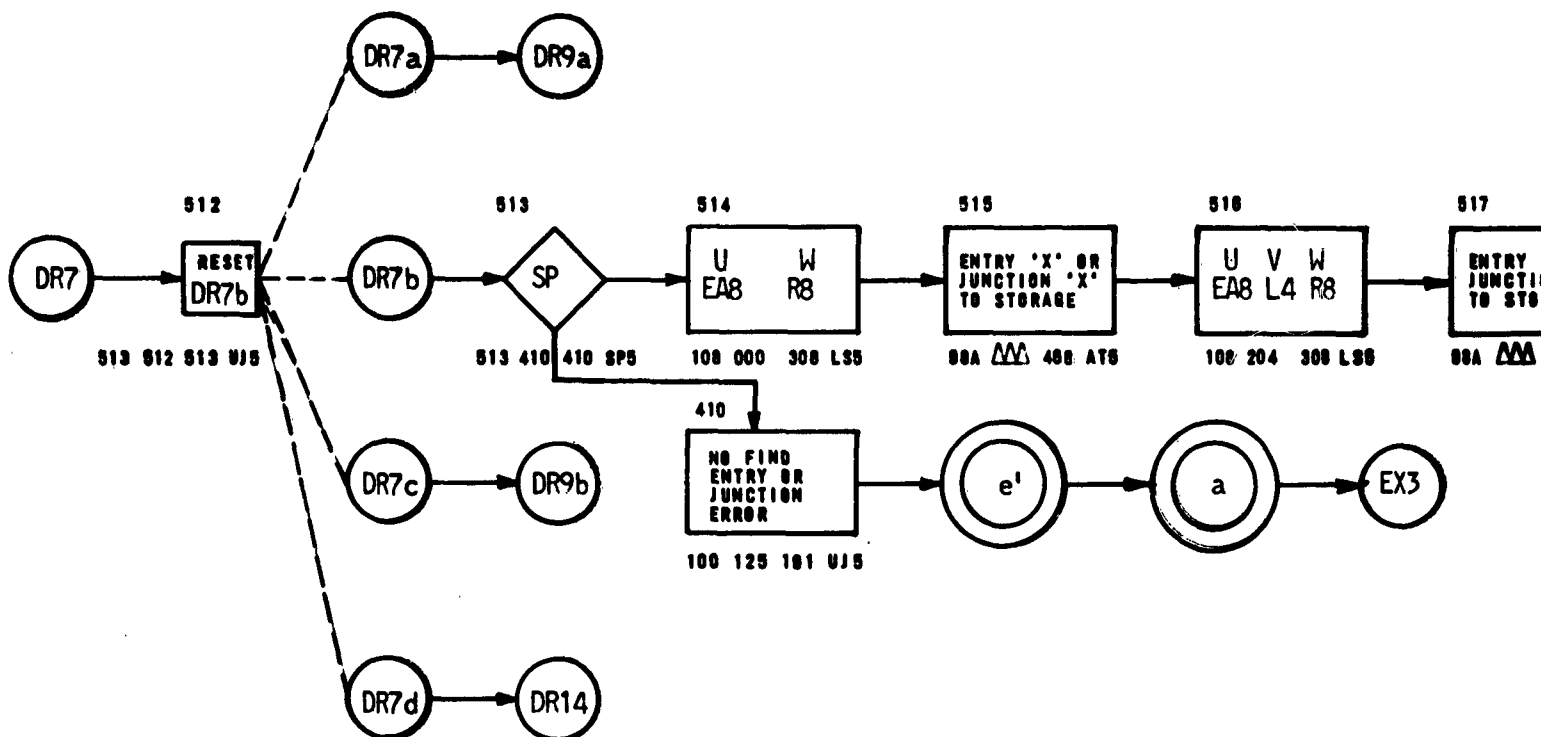
APPENDIX VI

DIRECT-ROUTE ROUTINE

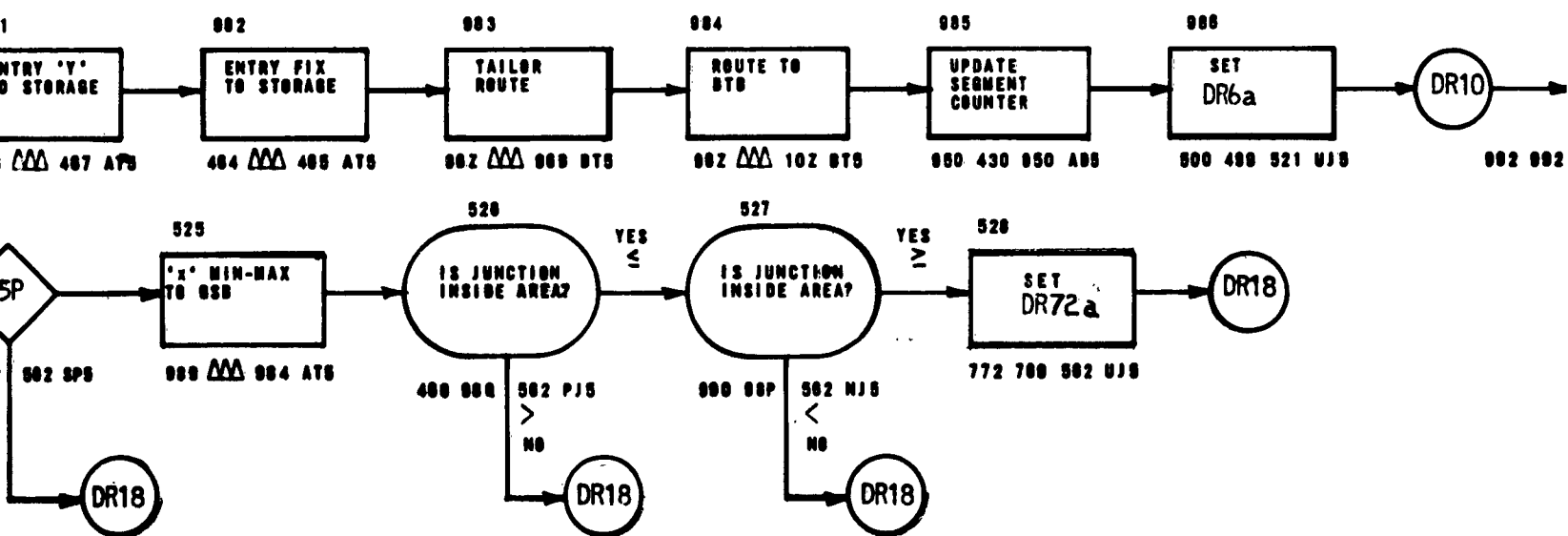
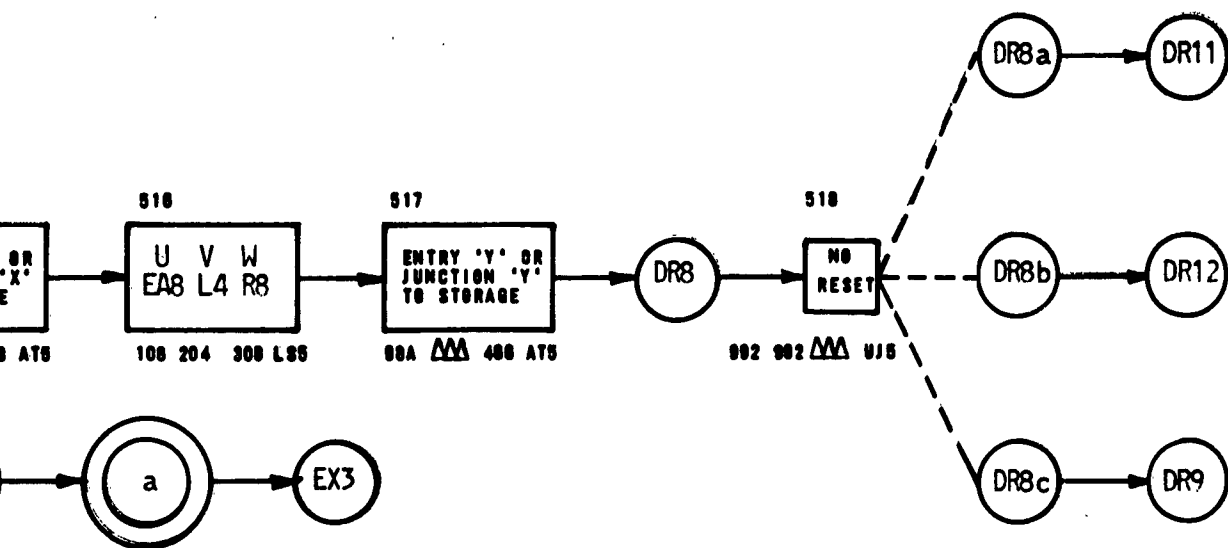


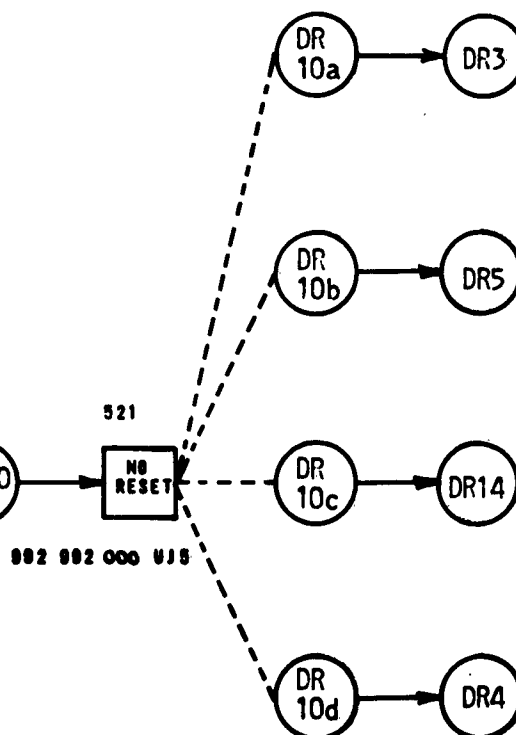
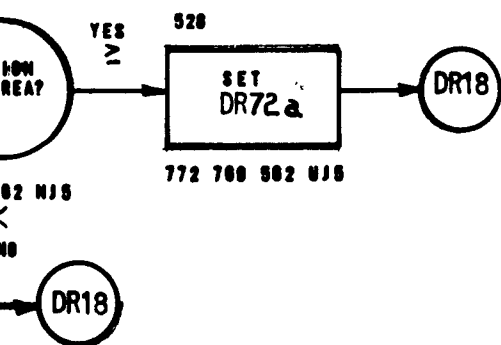
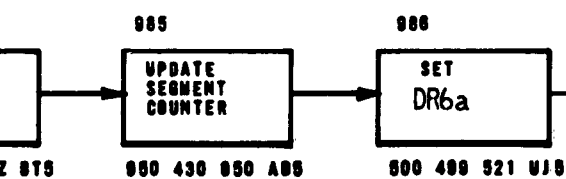
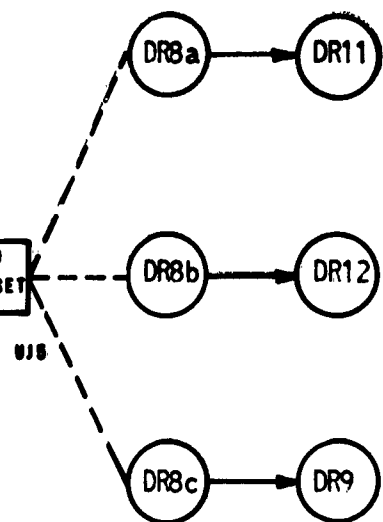


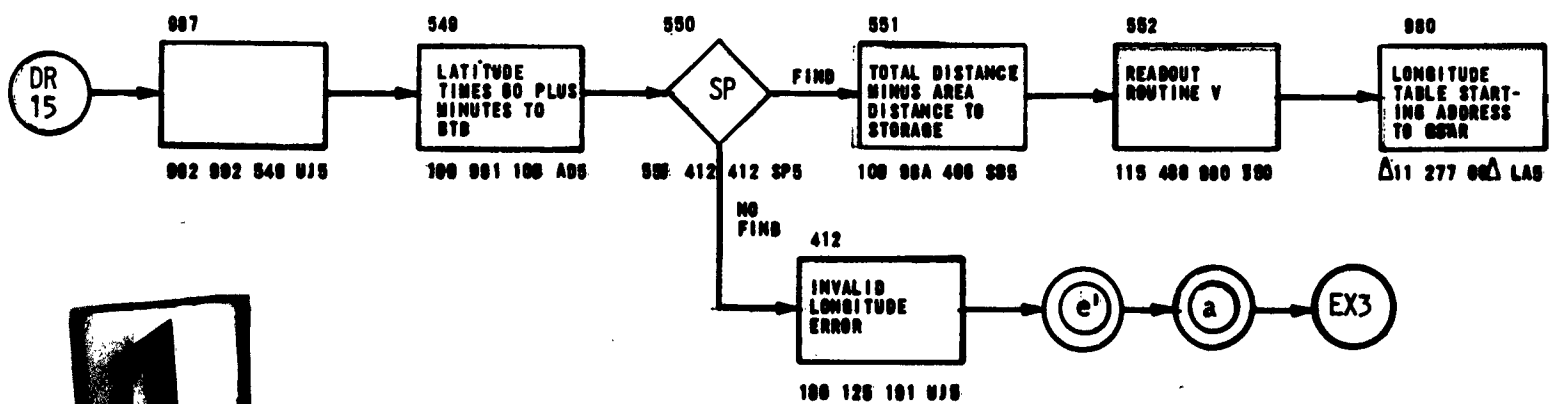
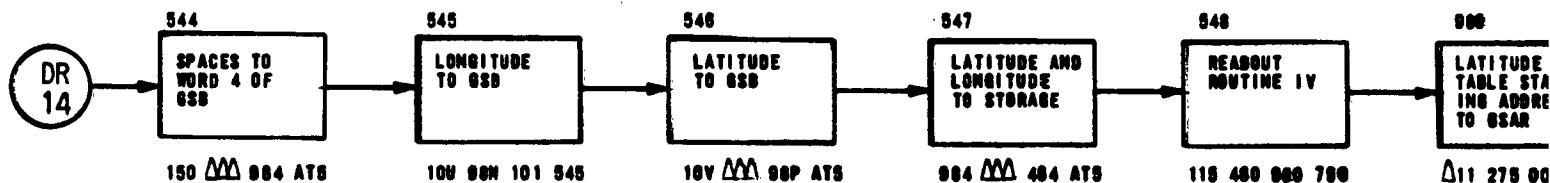
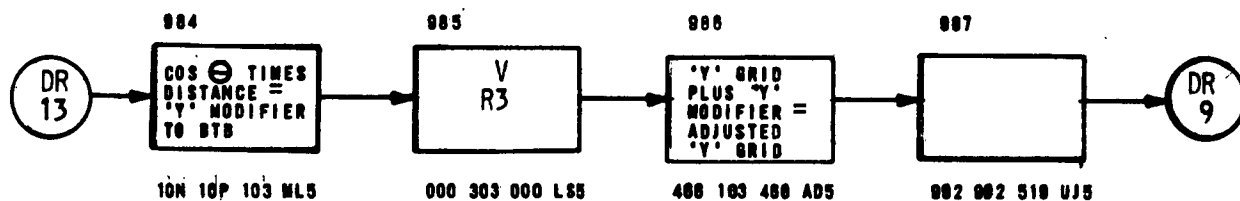
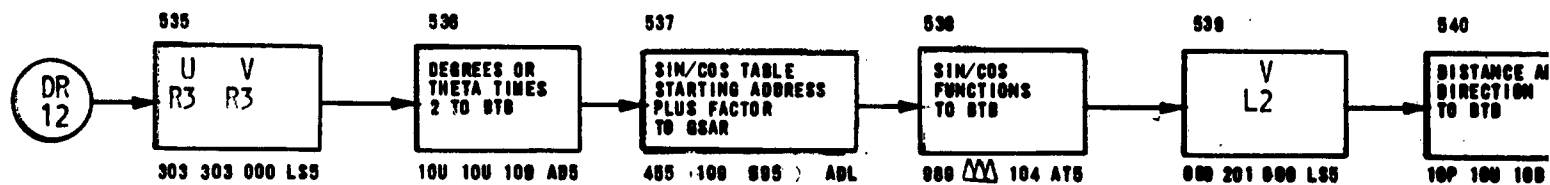
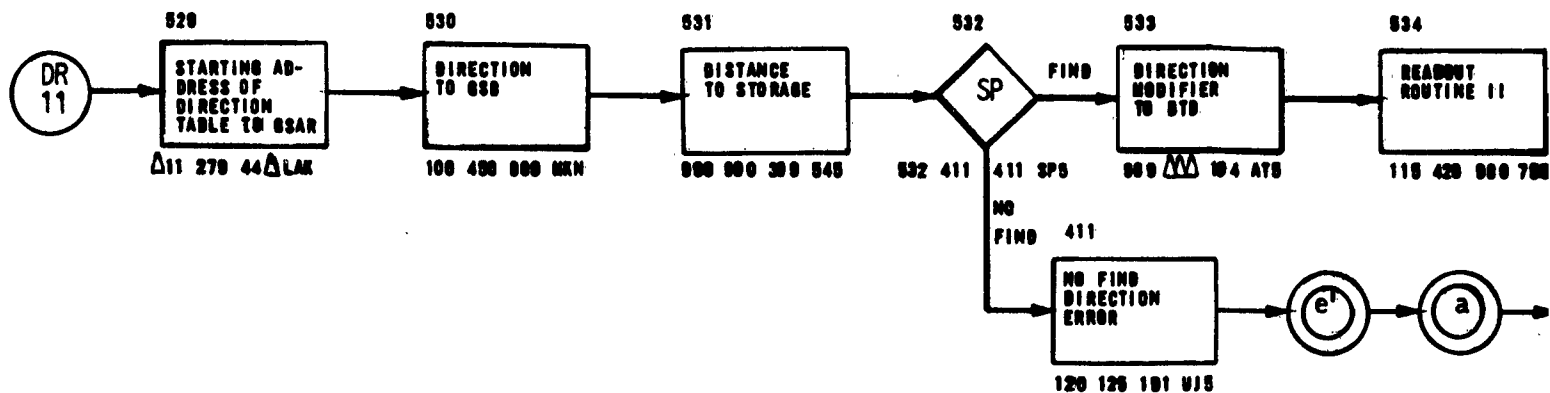


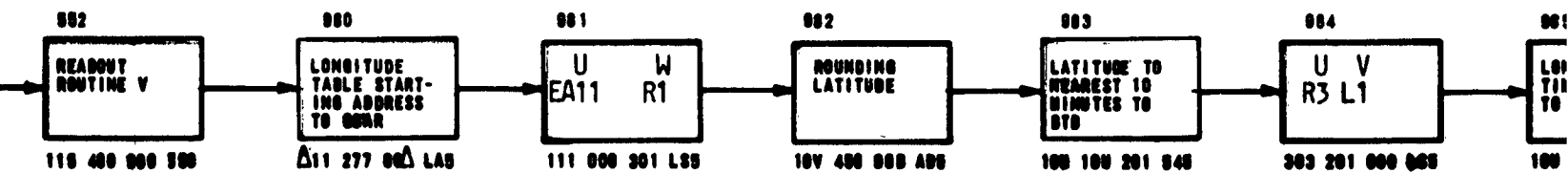
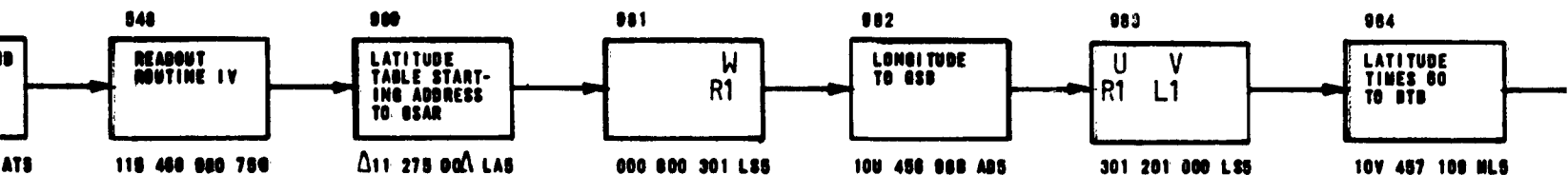
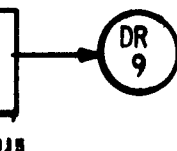
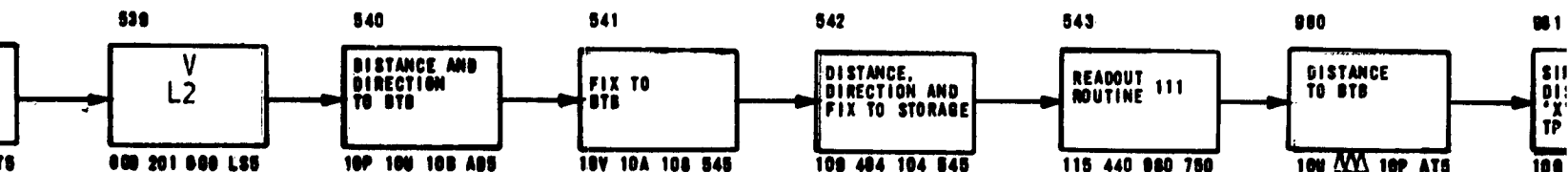
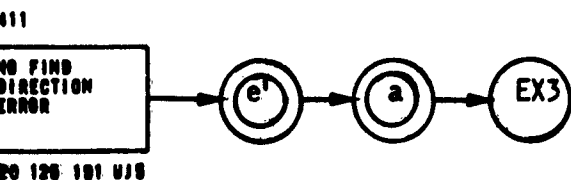
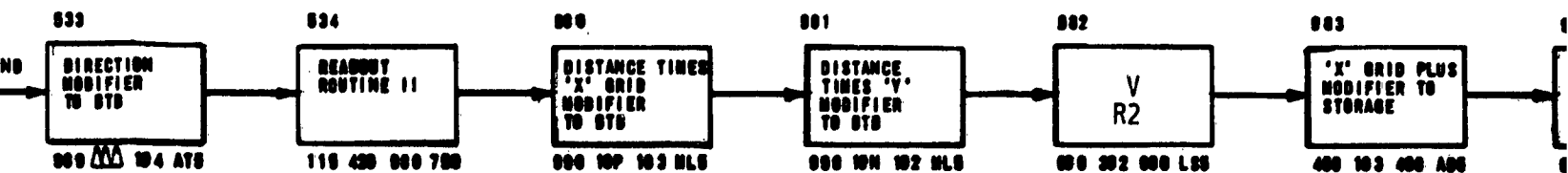


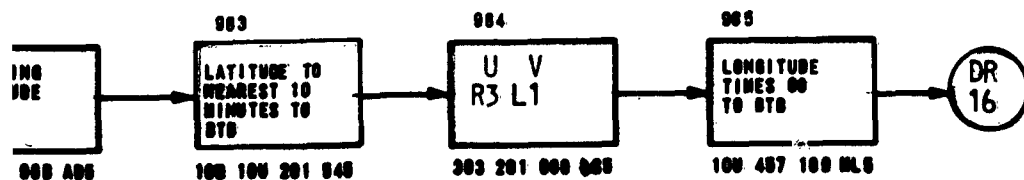
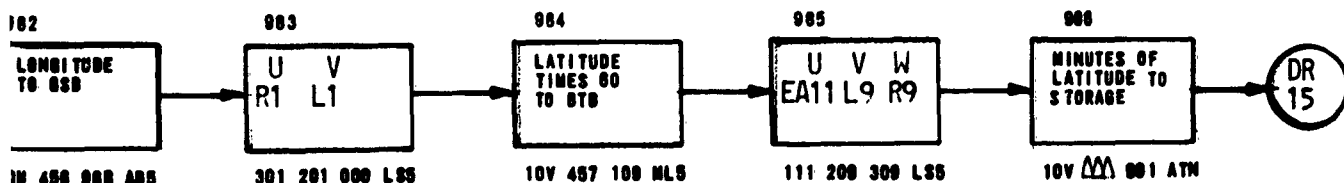
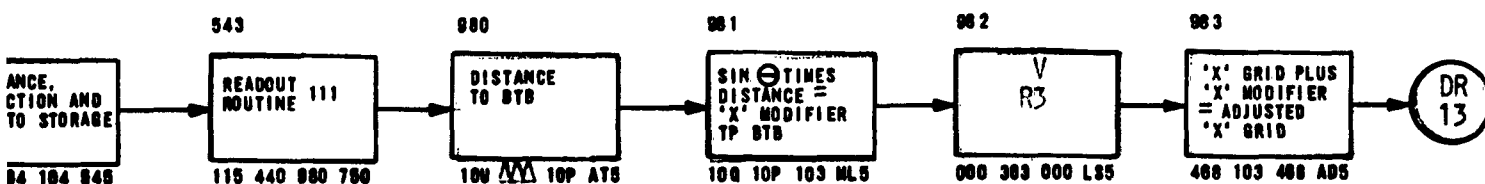
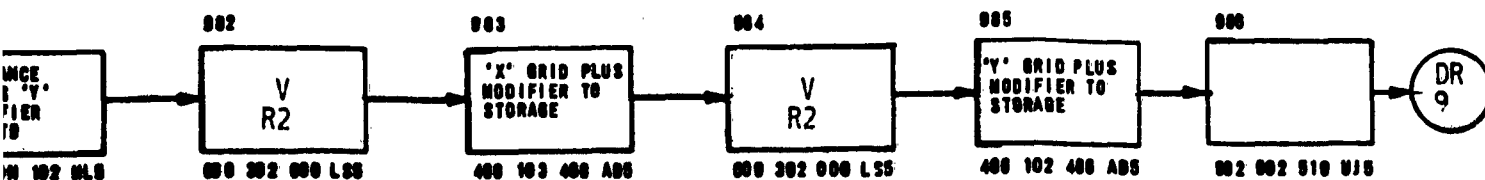
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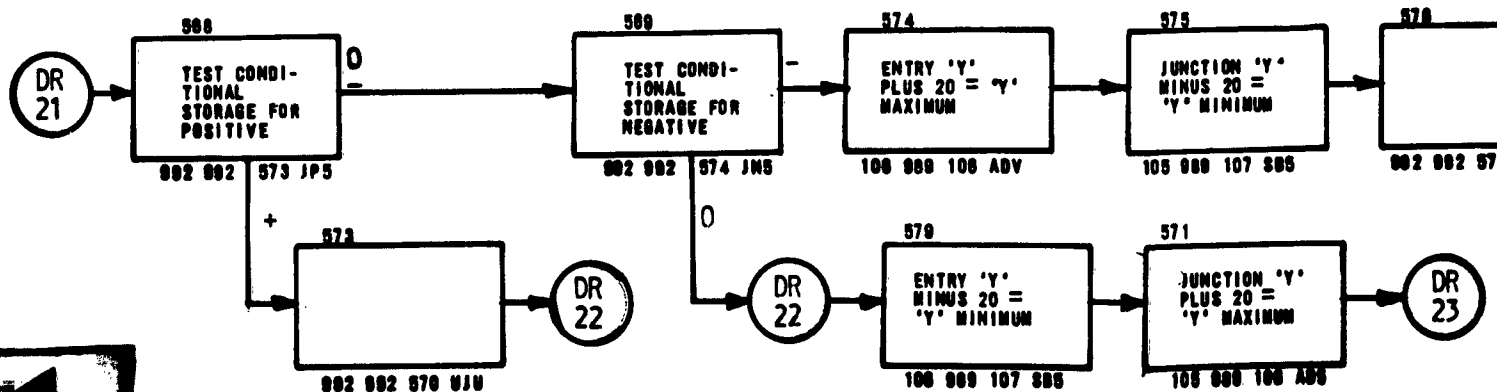
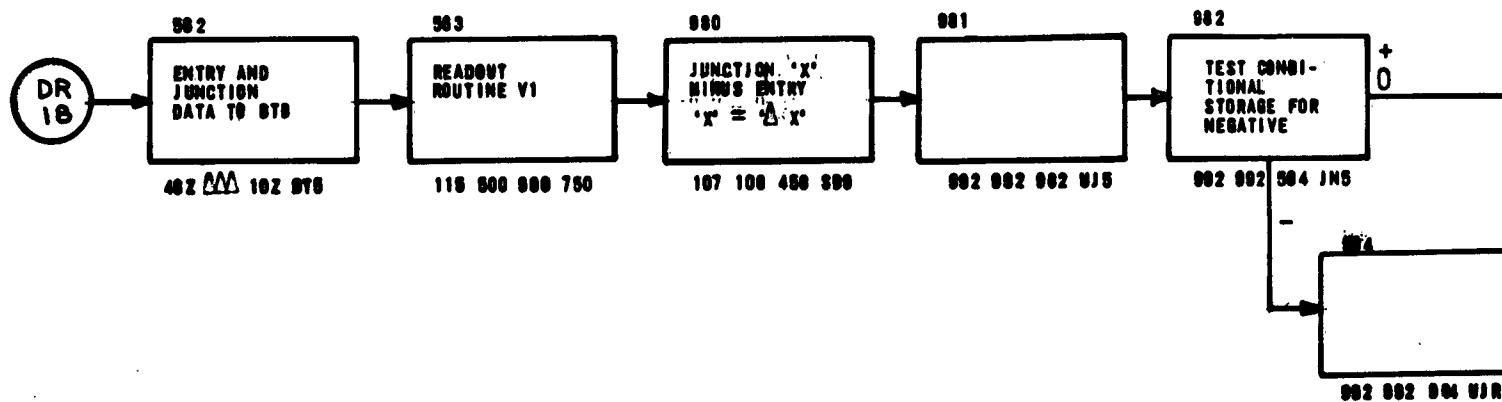
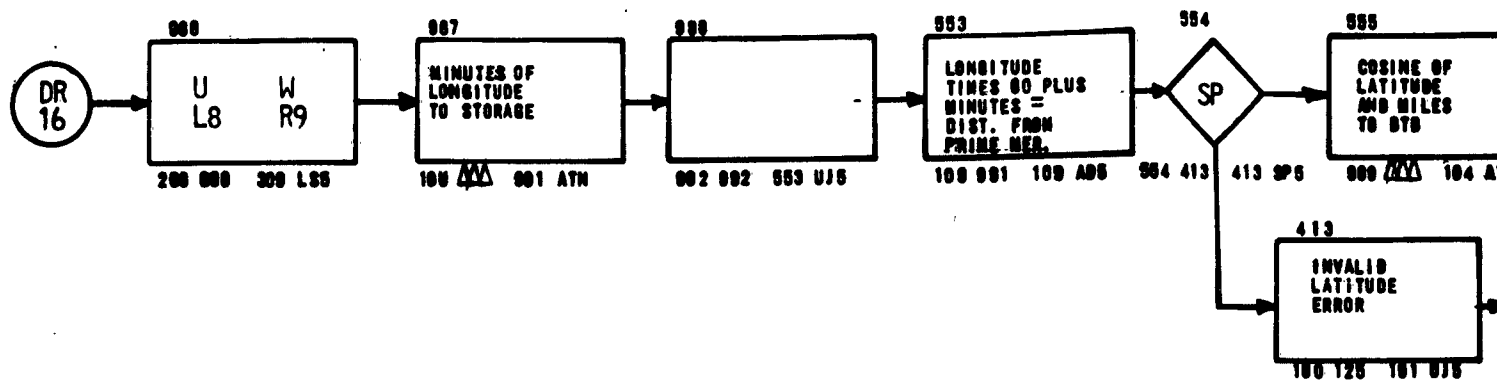


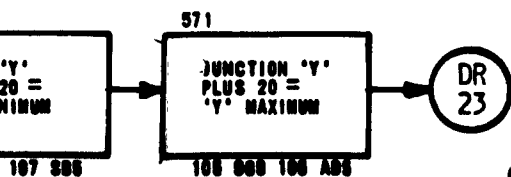


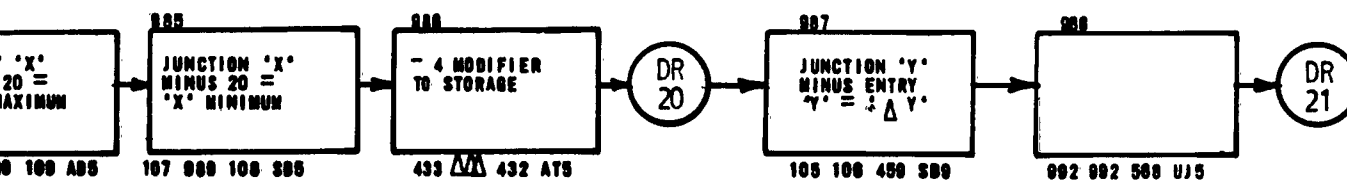
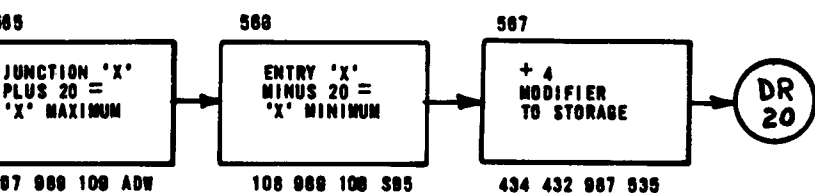
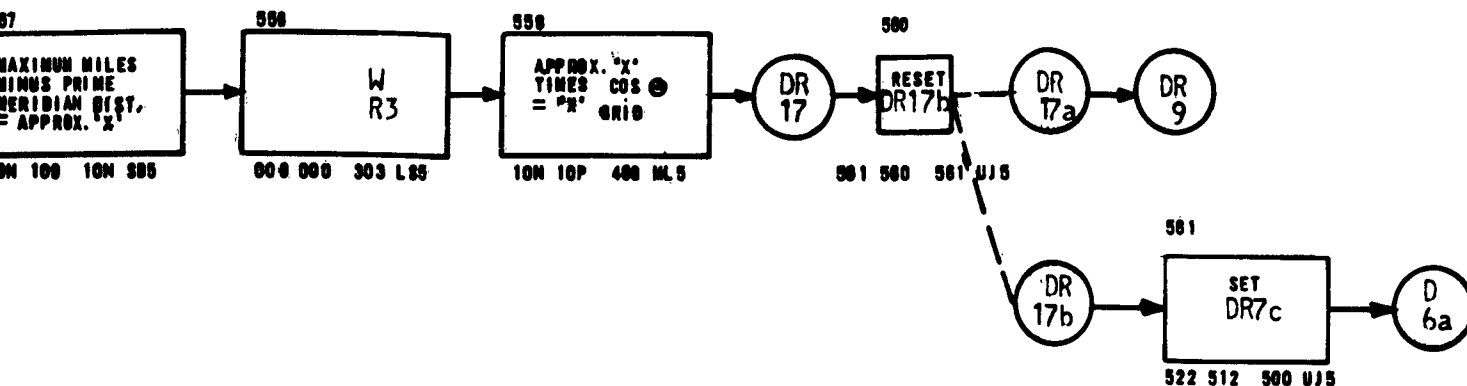


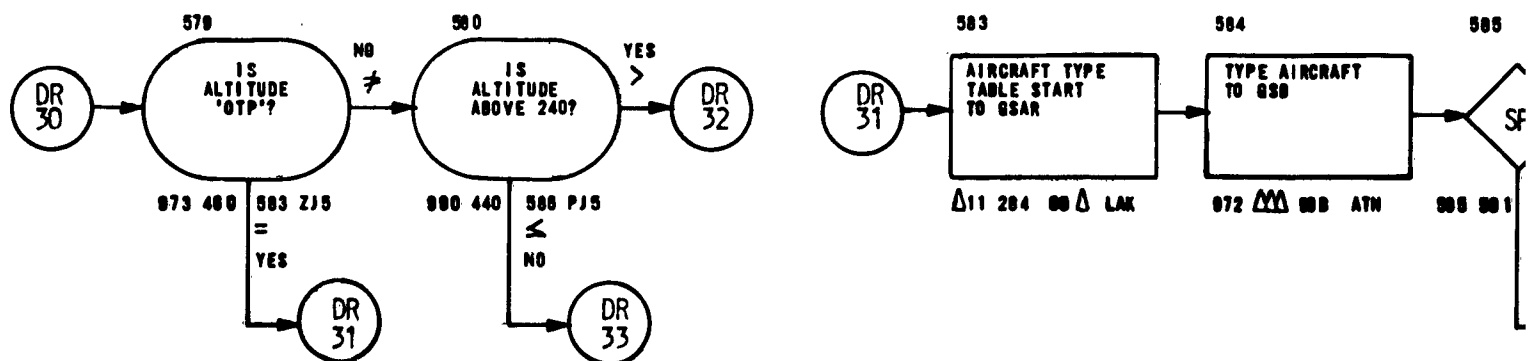


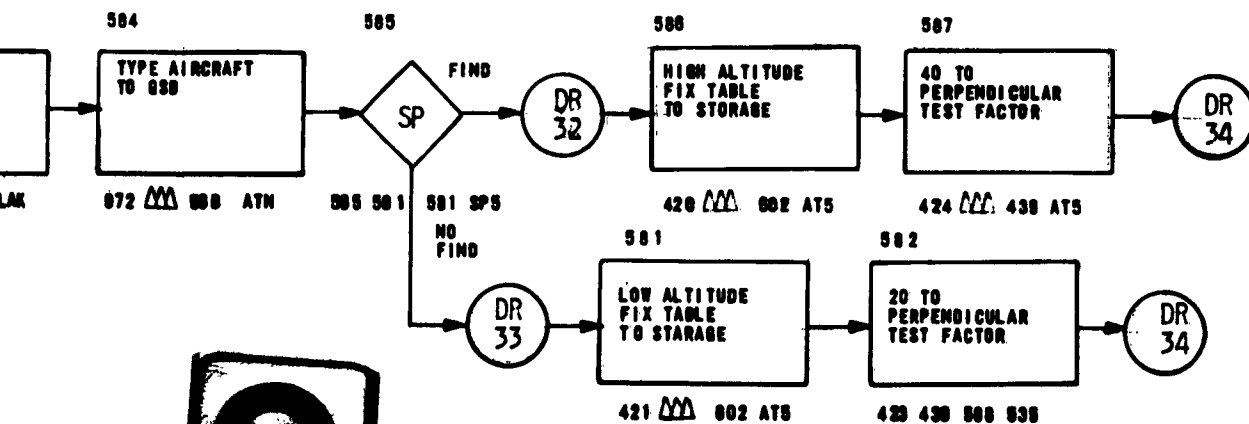
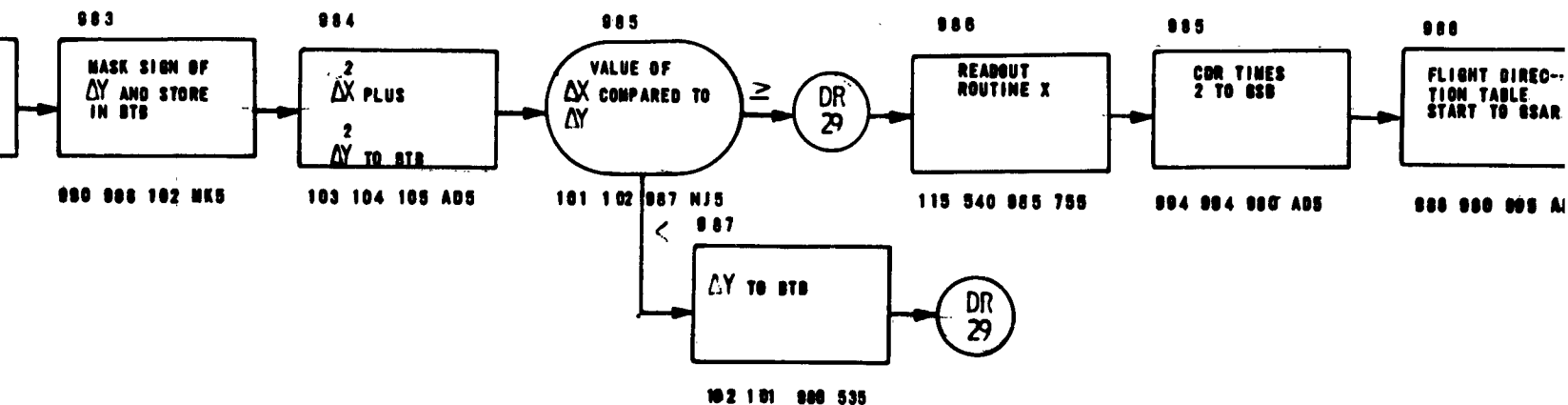
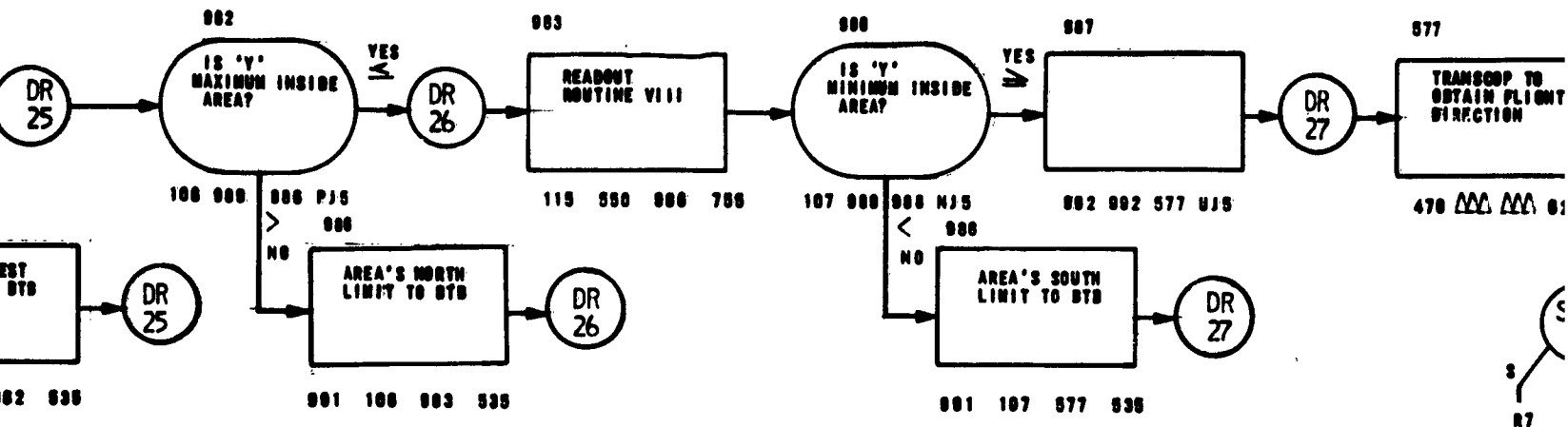


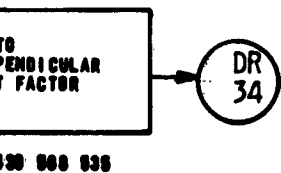
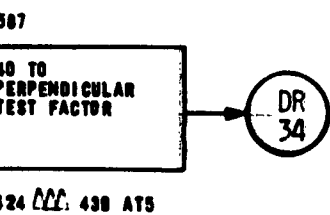
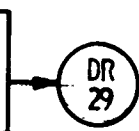
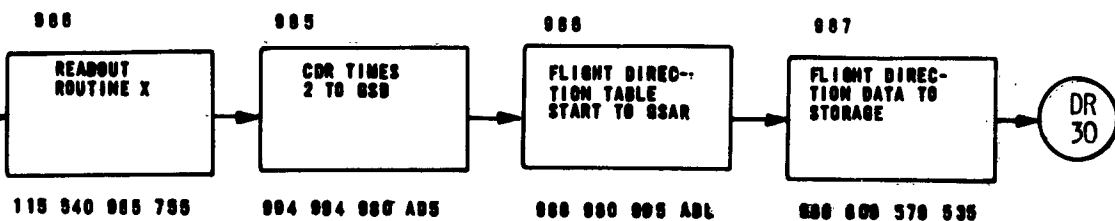
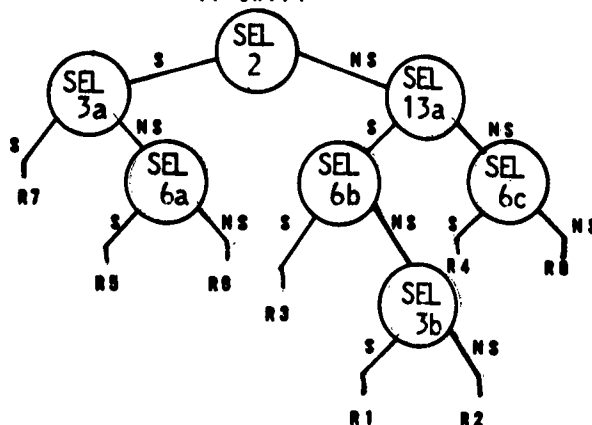
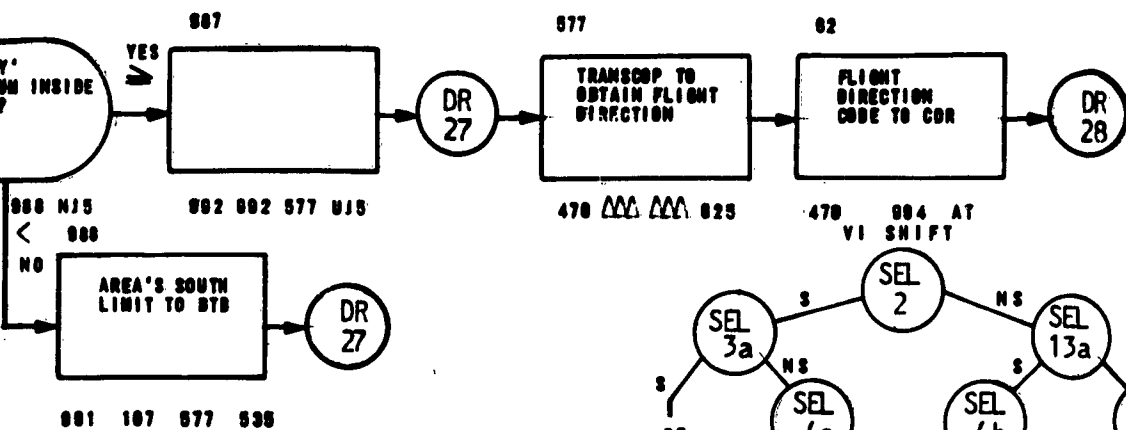


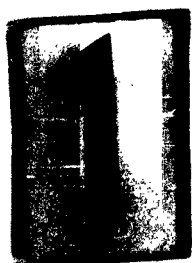
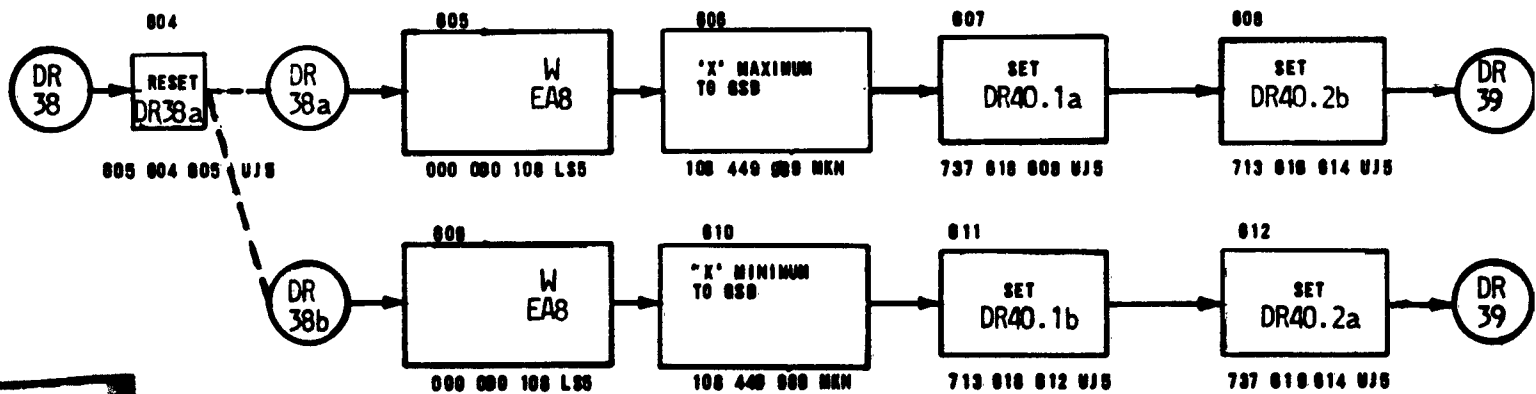
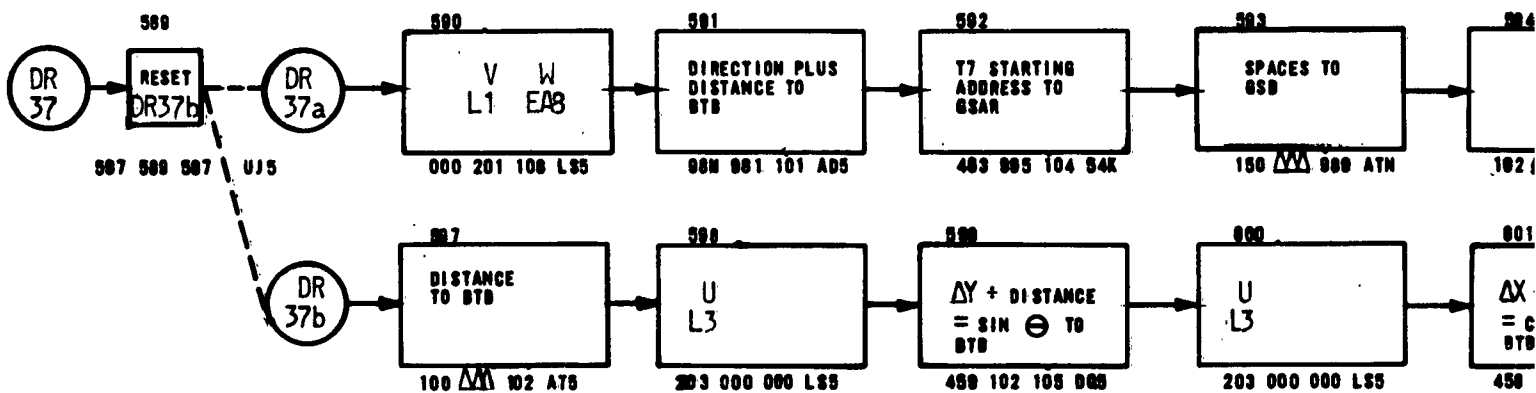
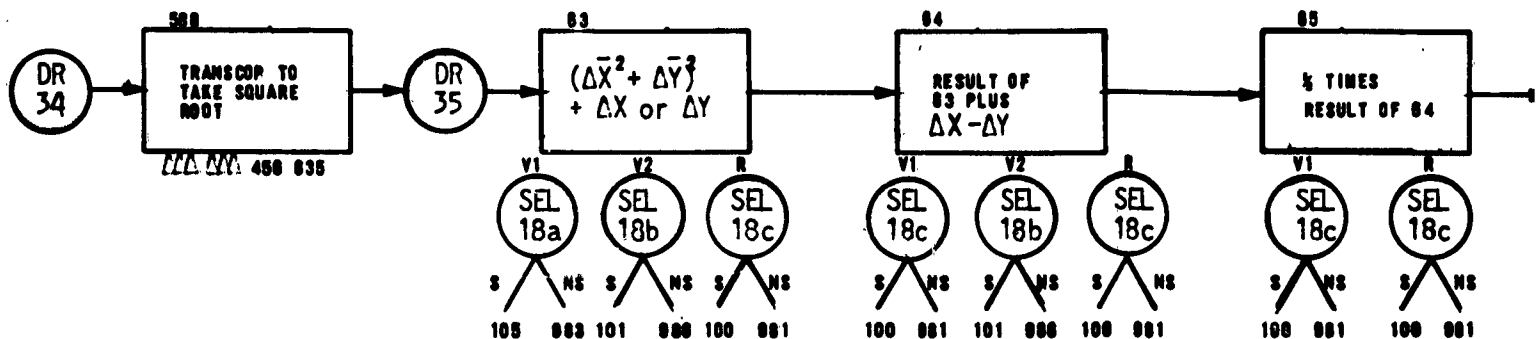


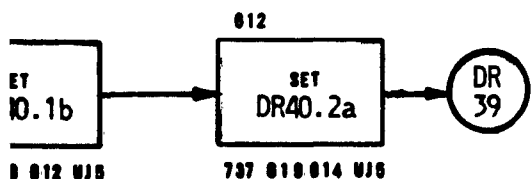
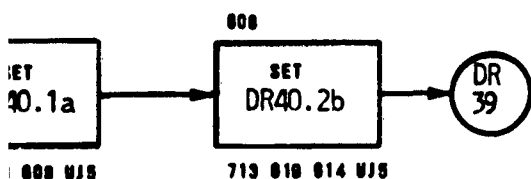
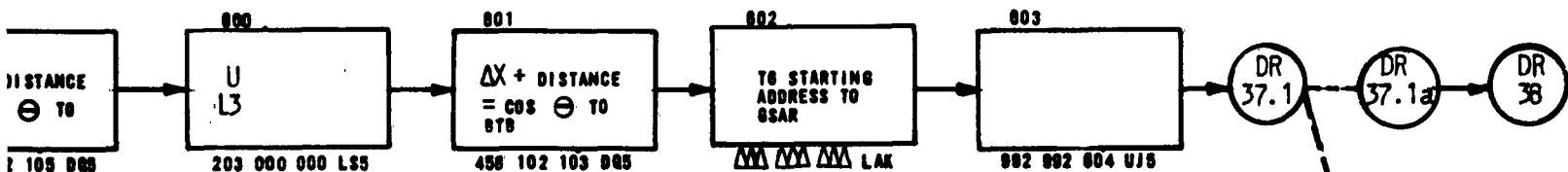
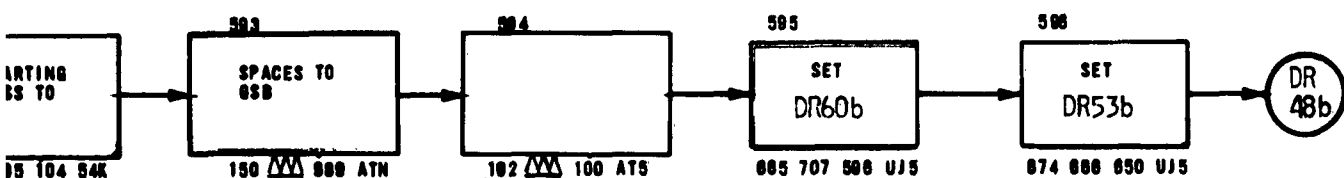
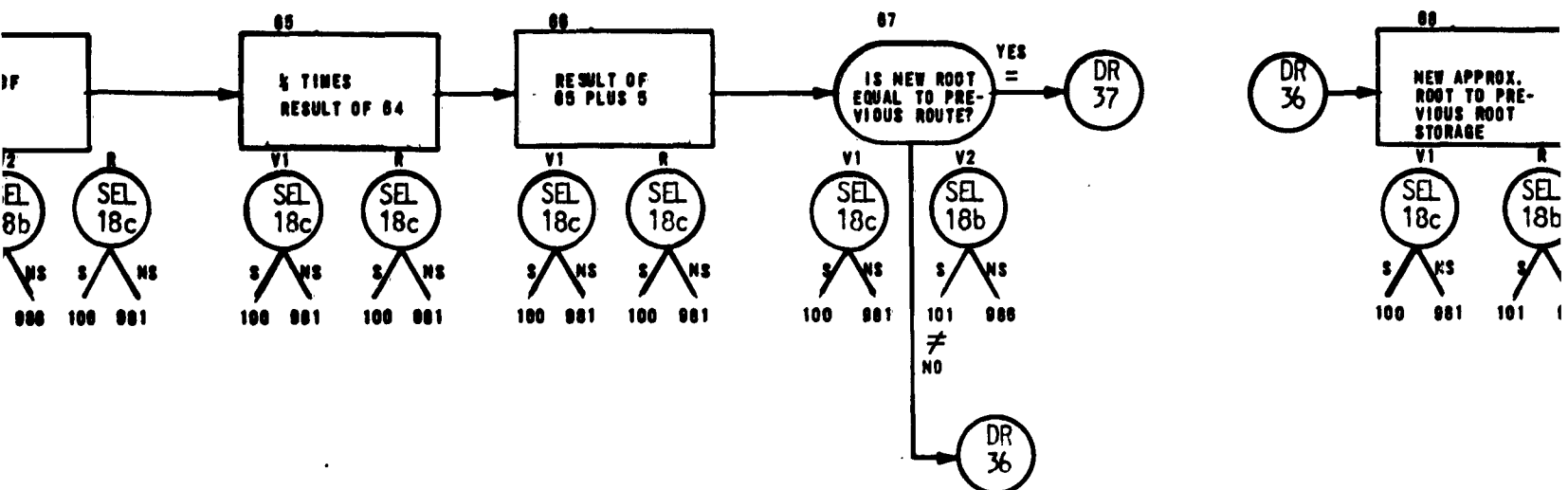


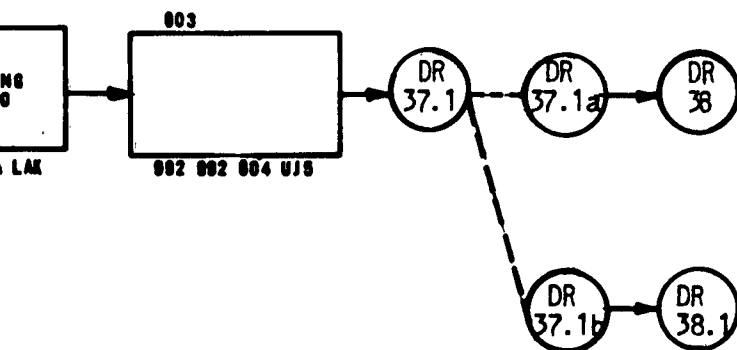
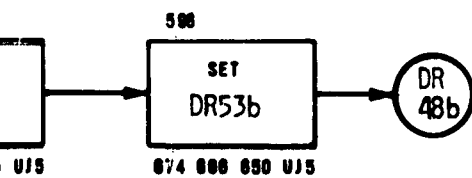
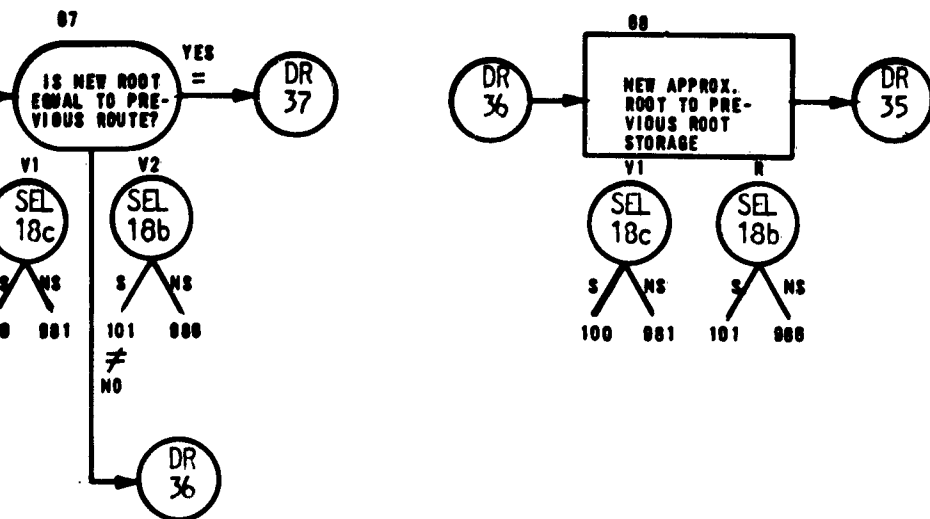


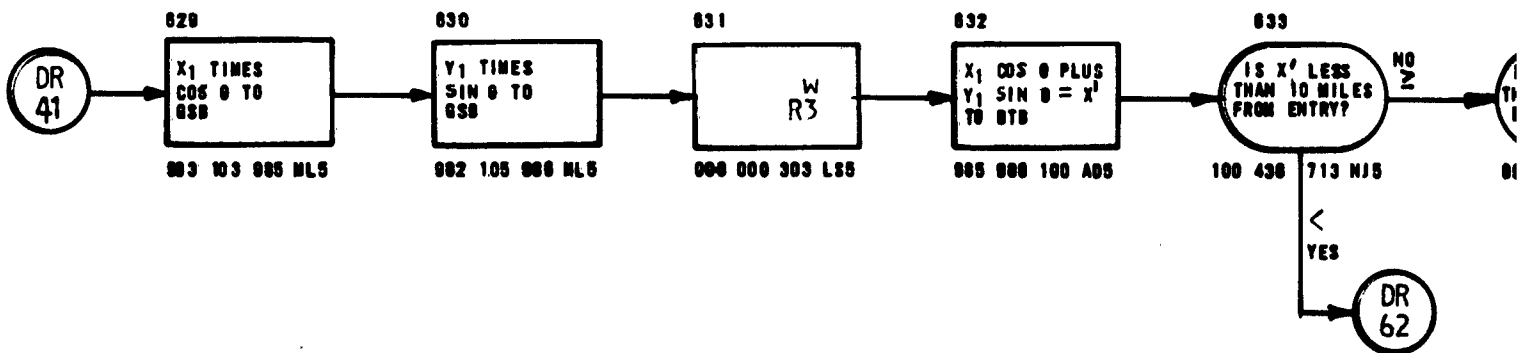
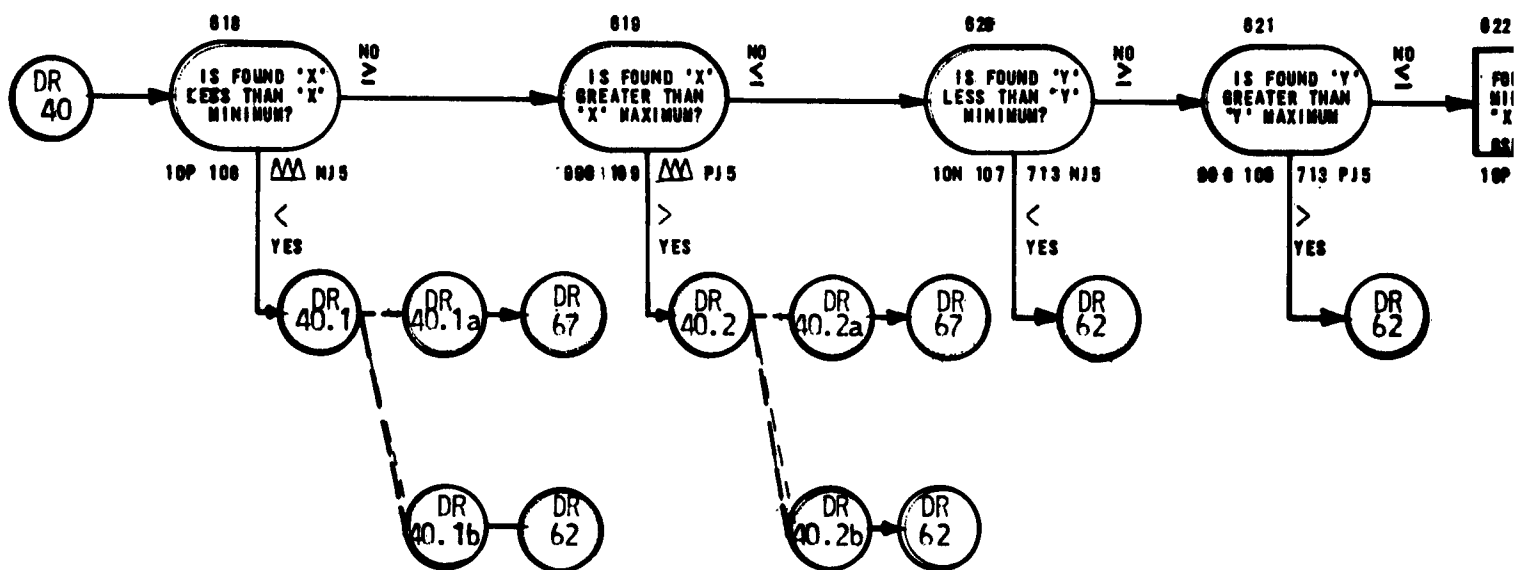
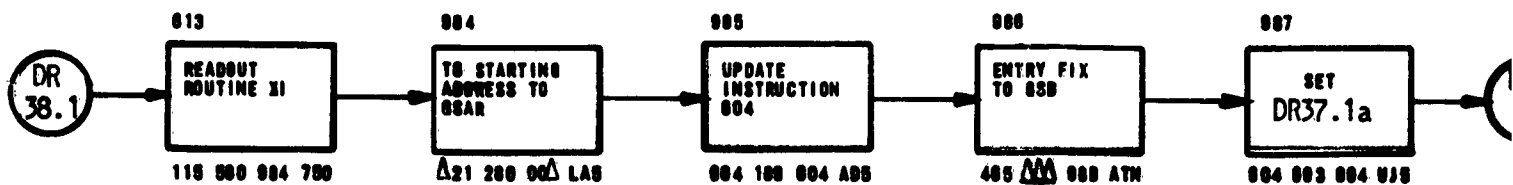


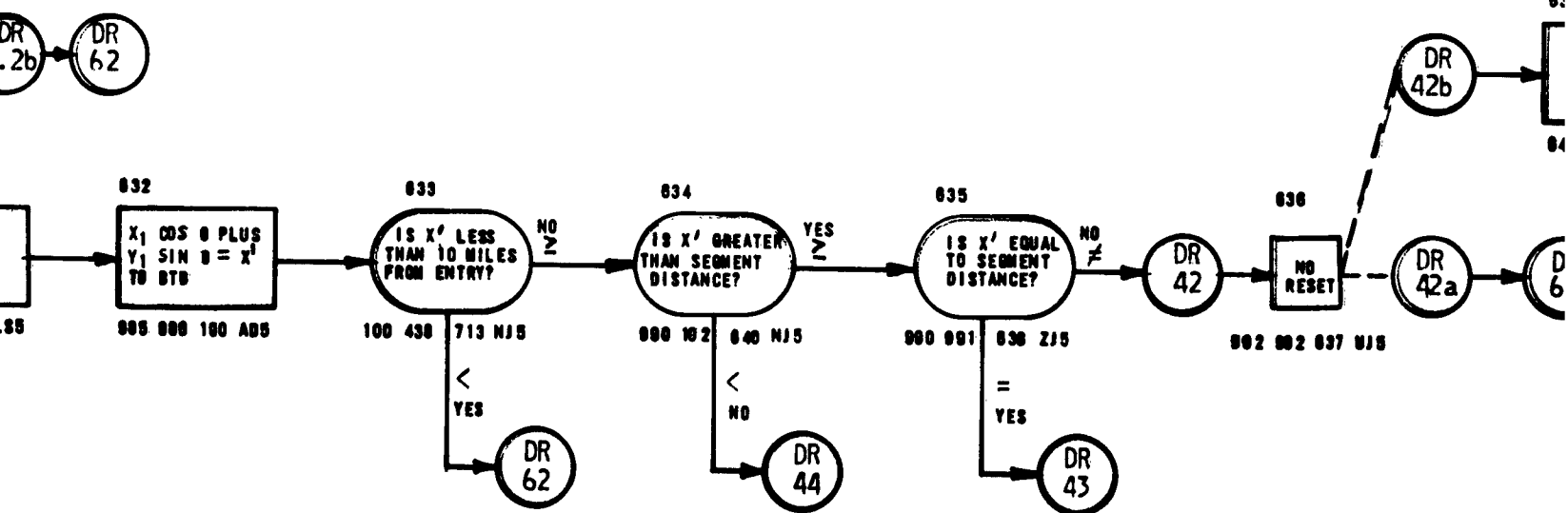
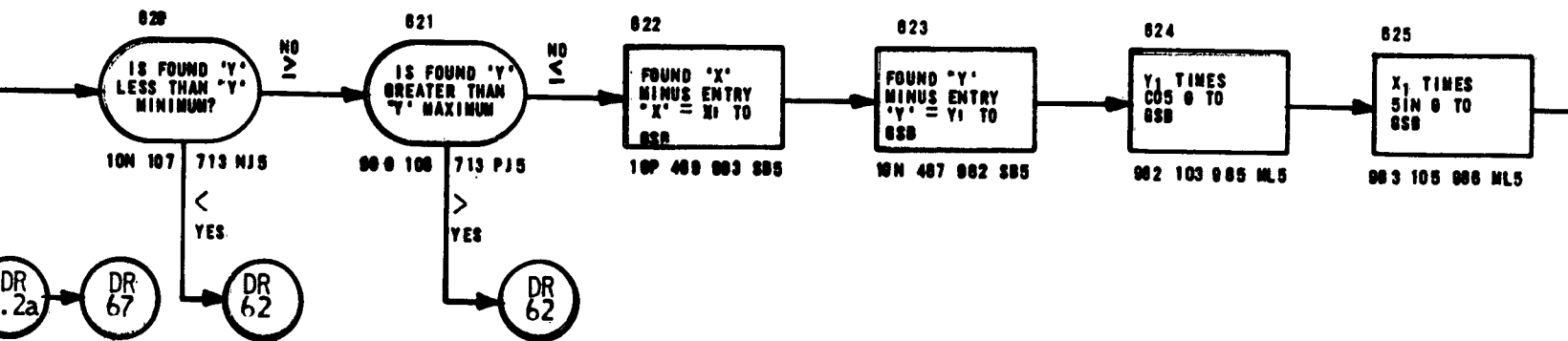
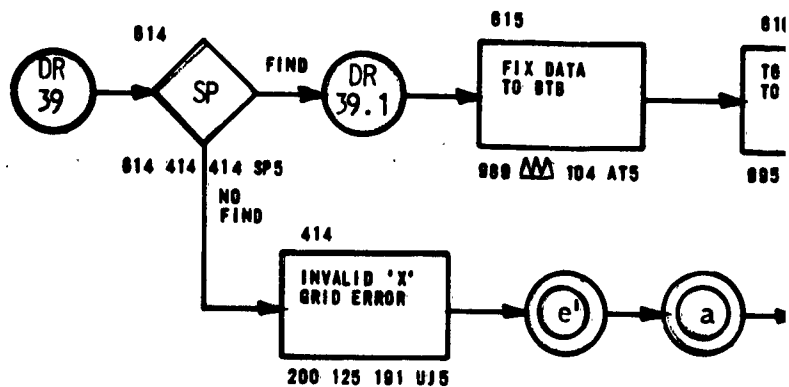
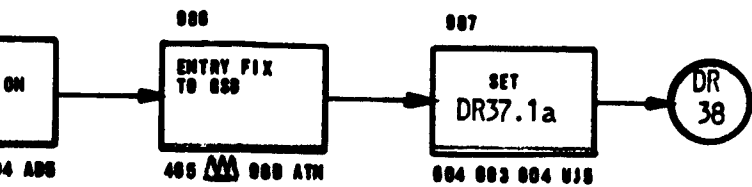


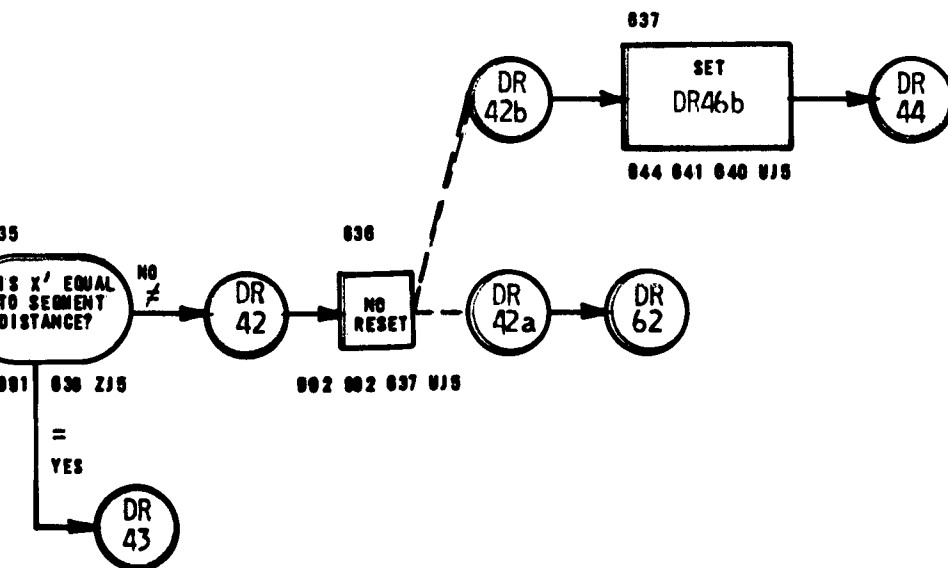
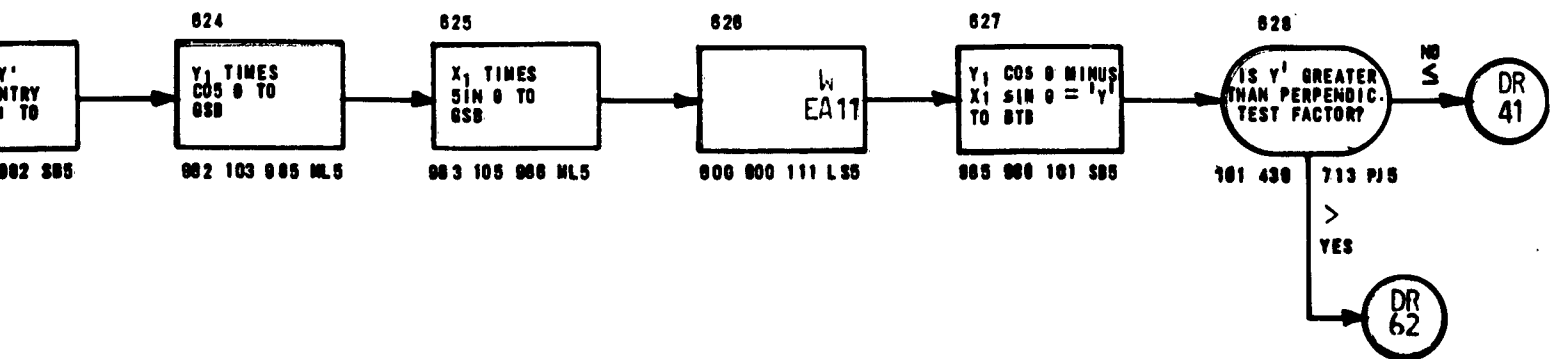
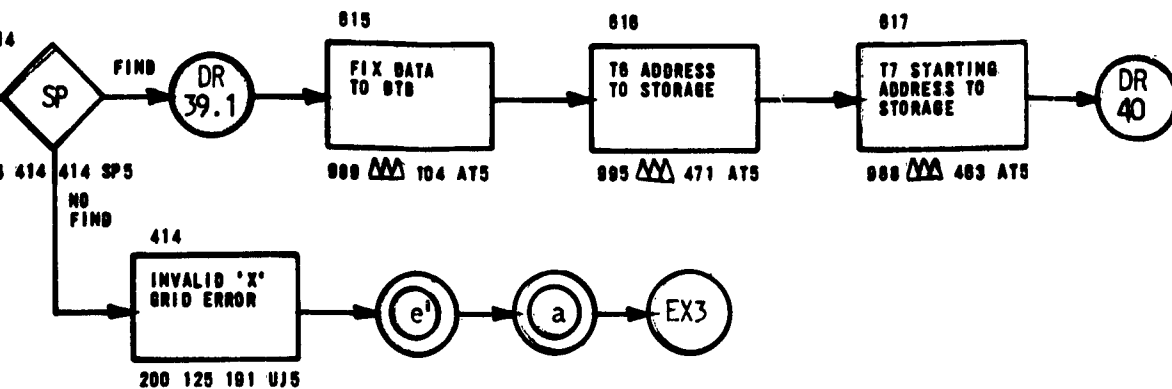


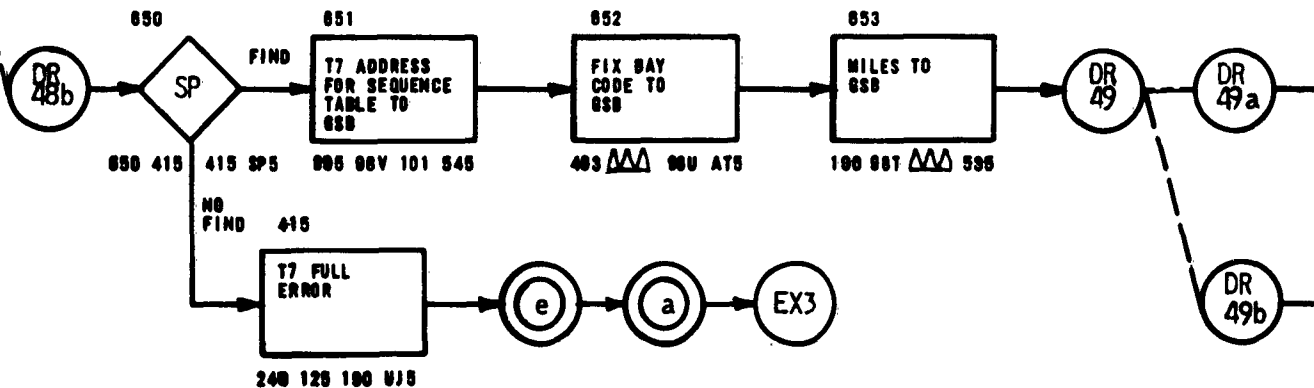
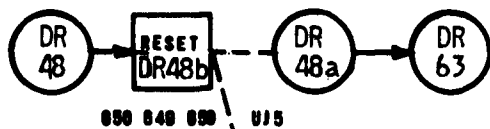
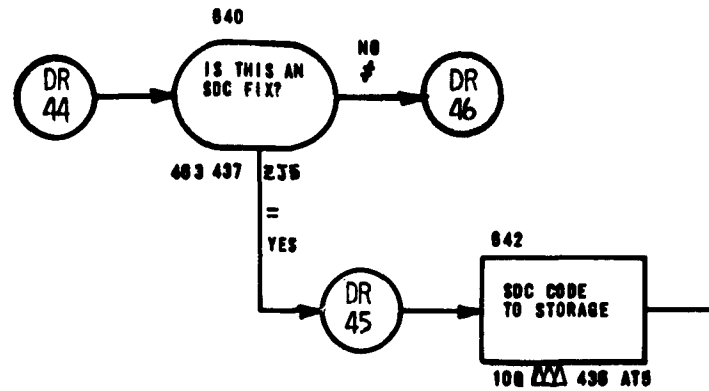
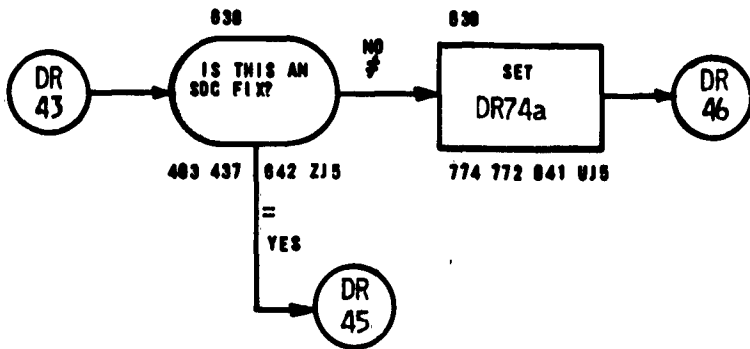


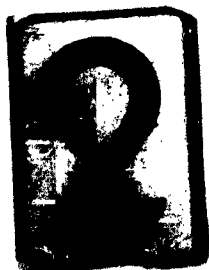
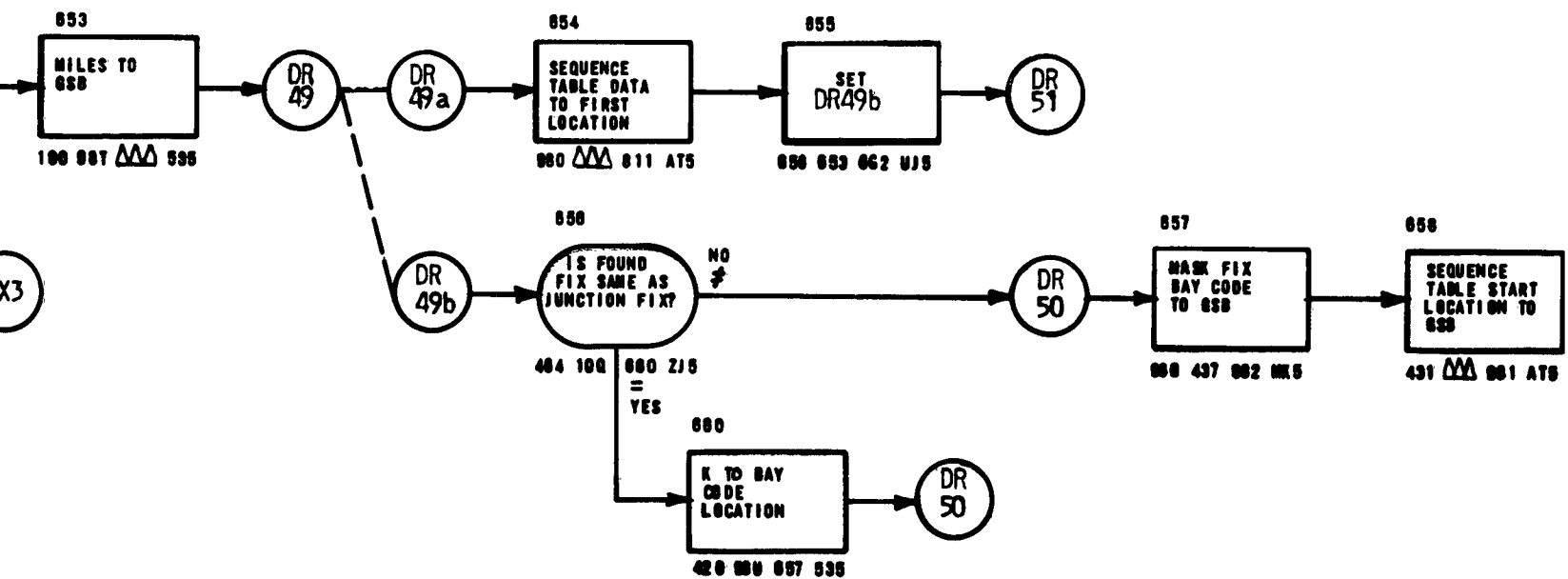
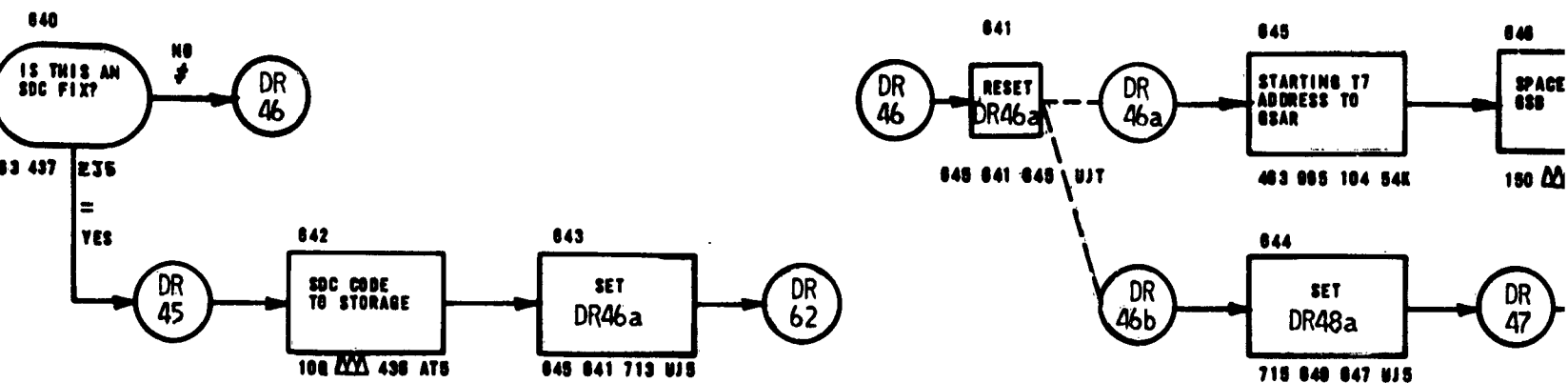


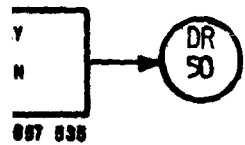
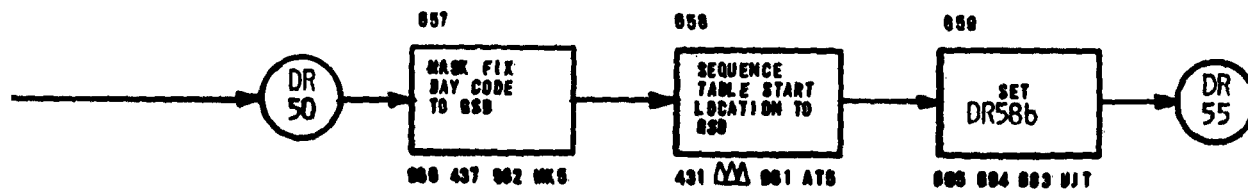
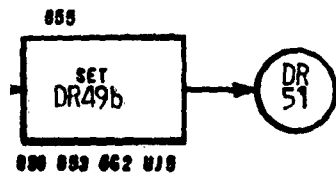
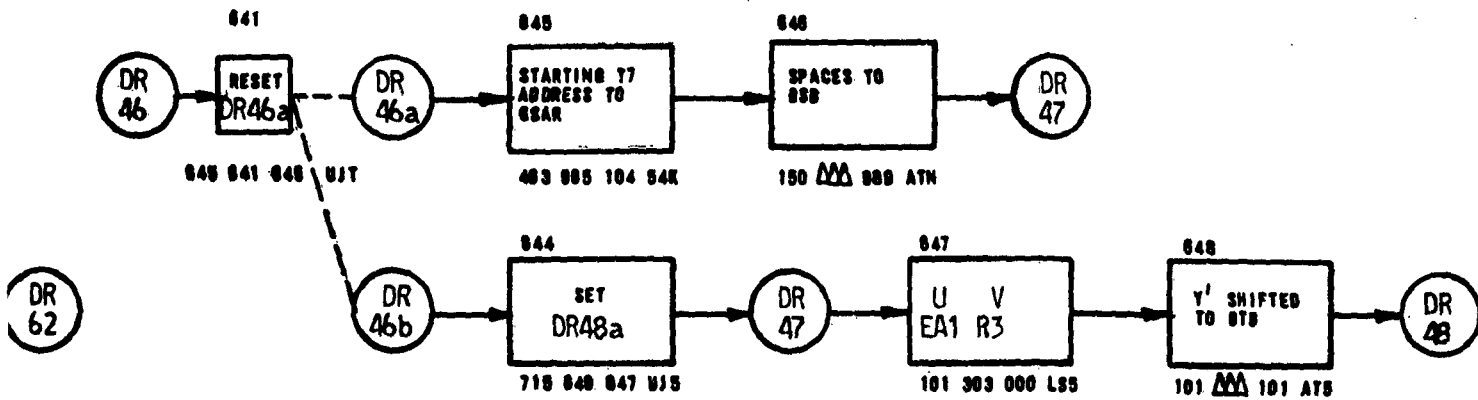


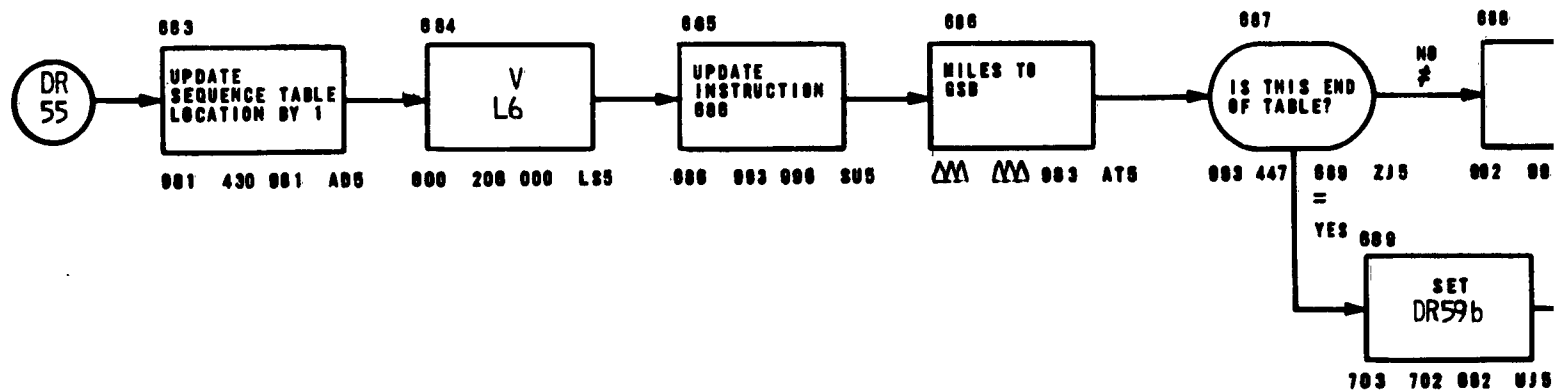
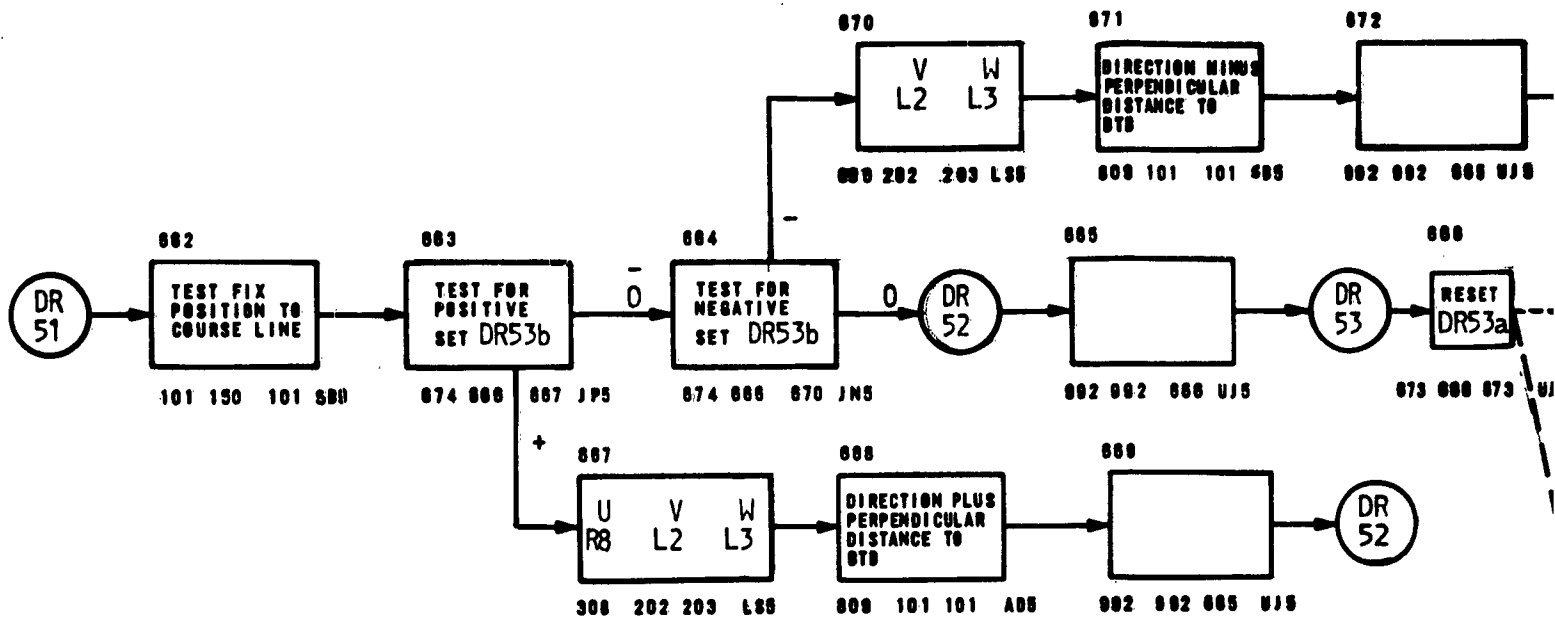


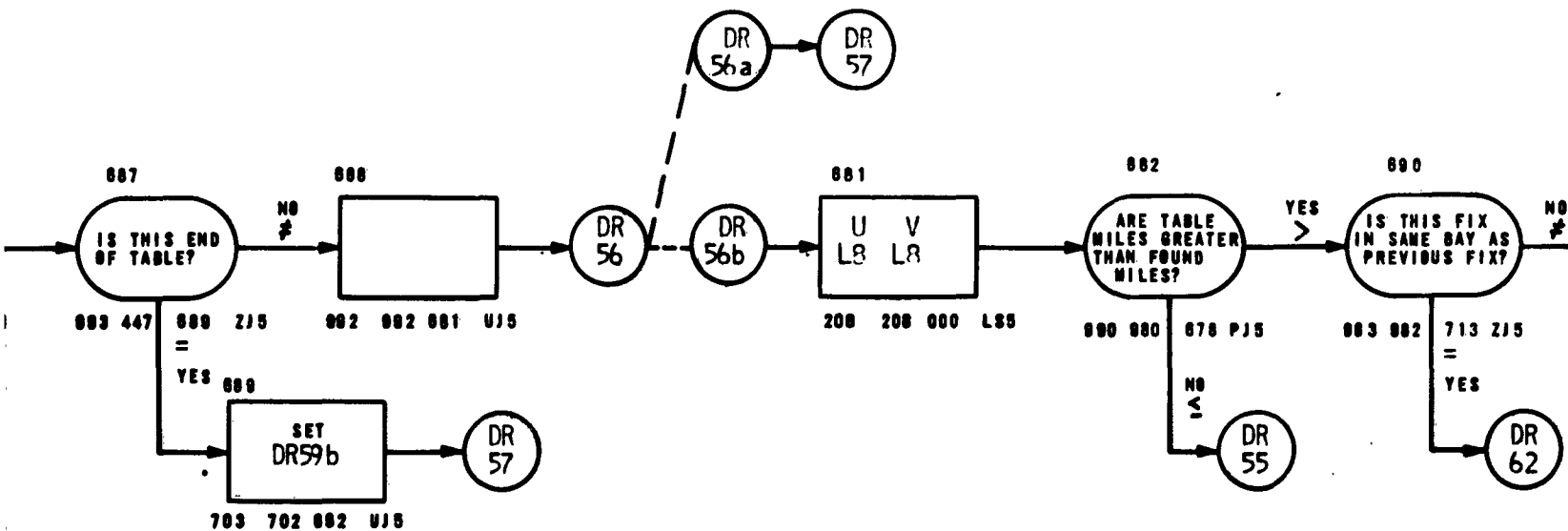
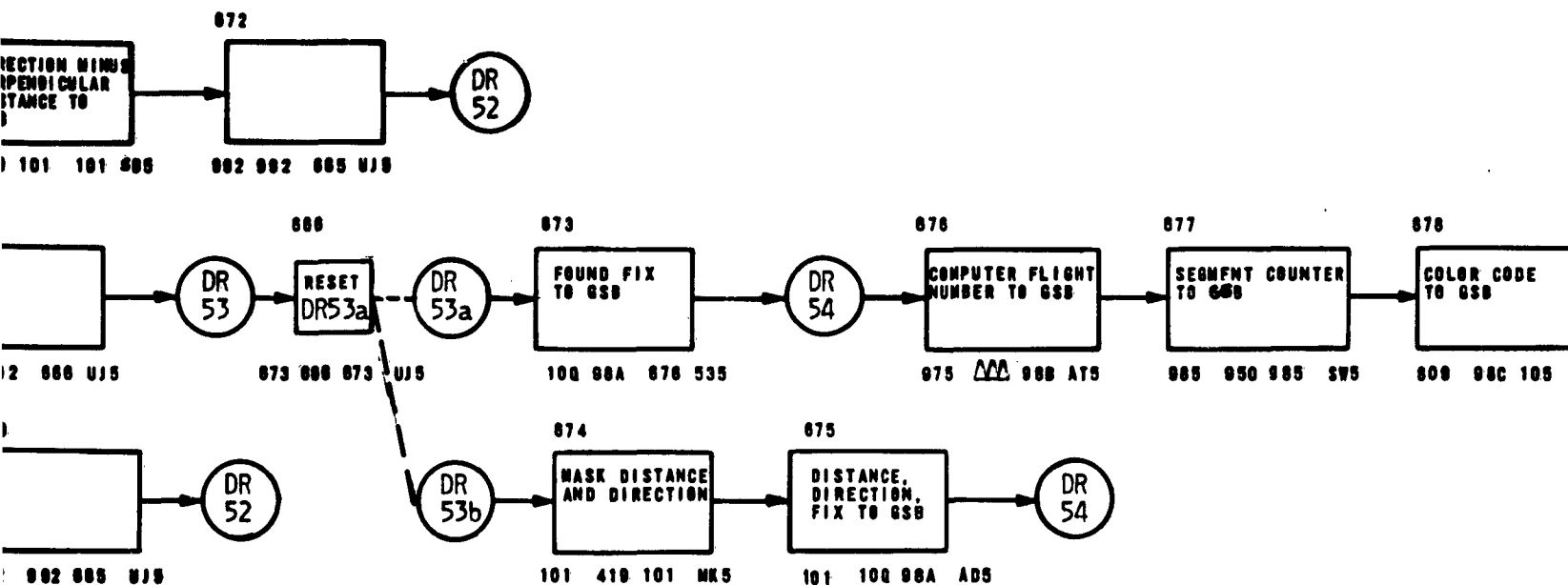


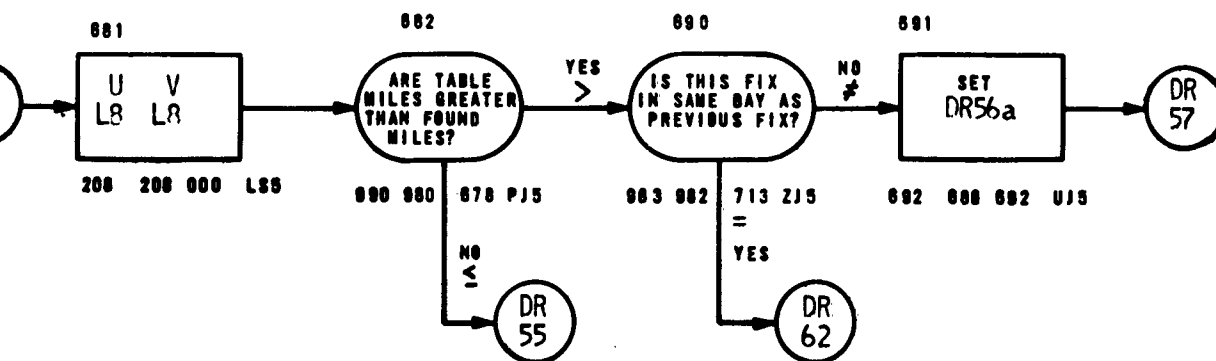
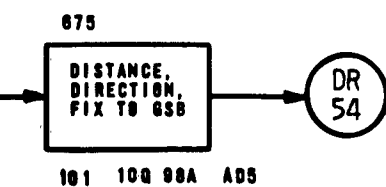
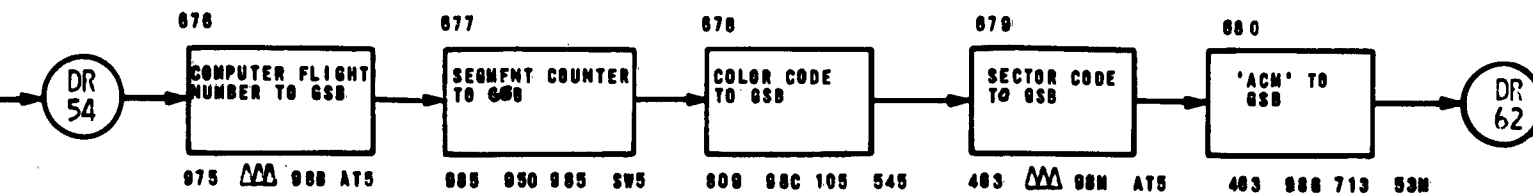


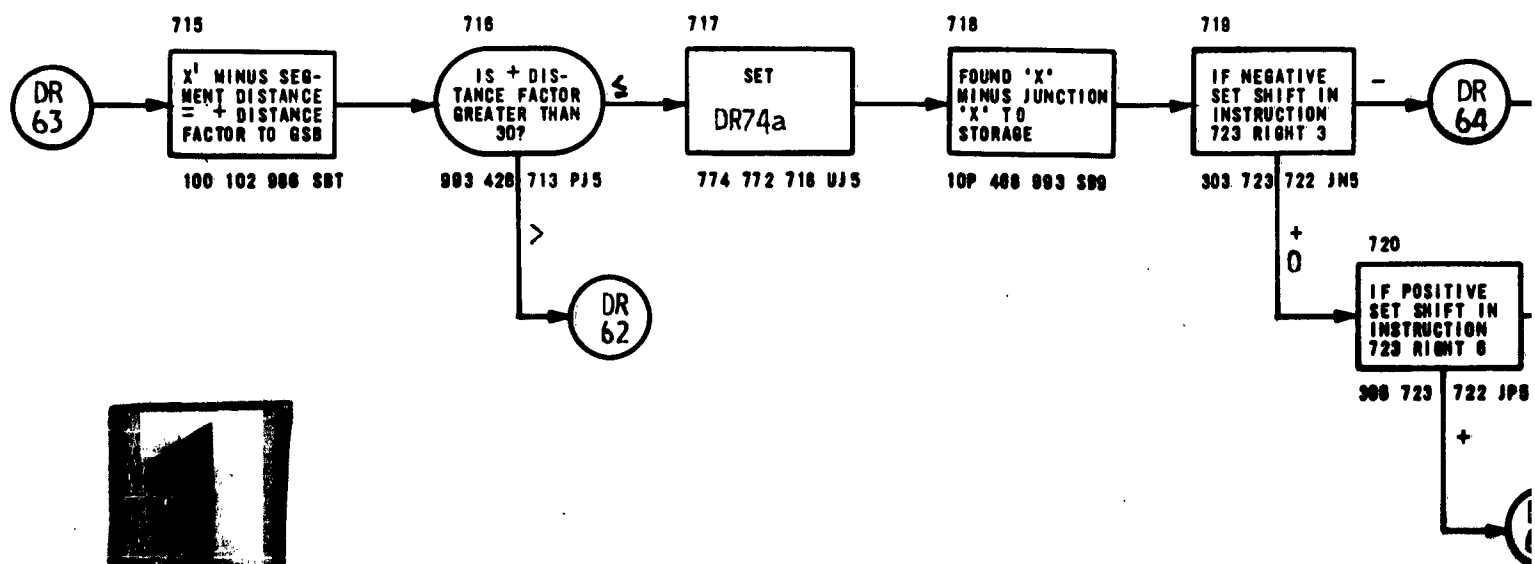
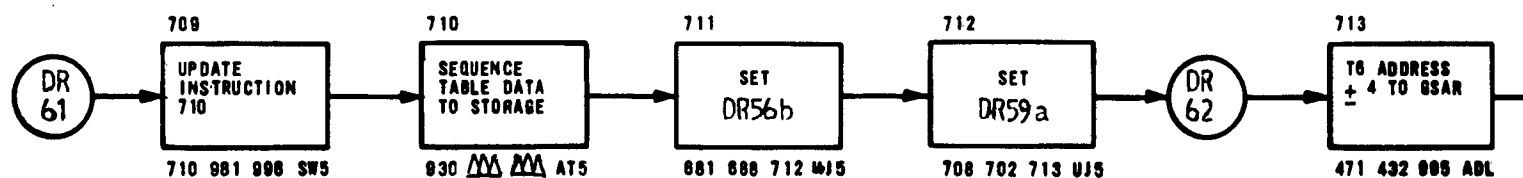
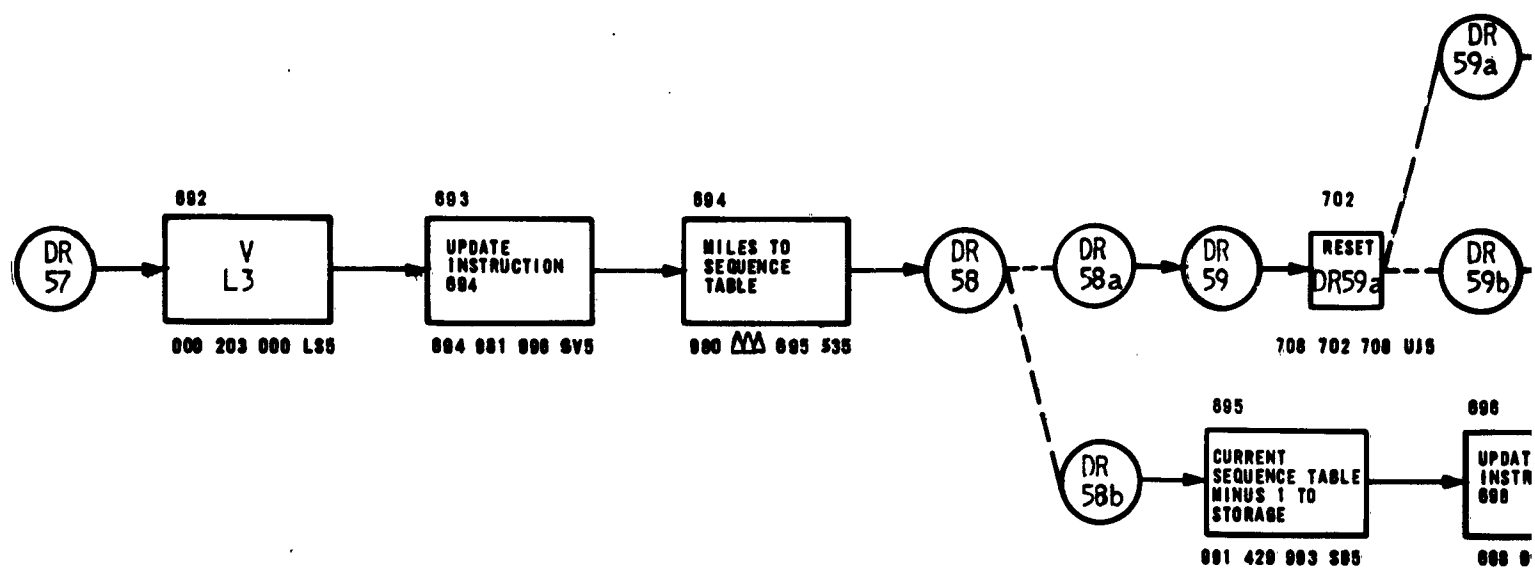


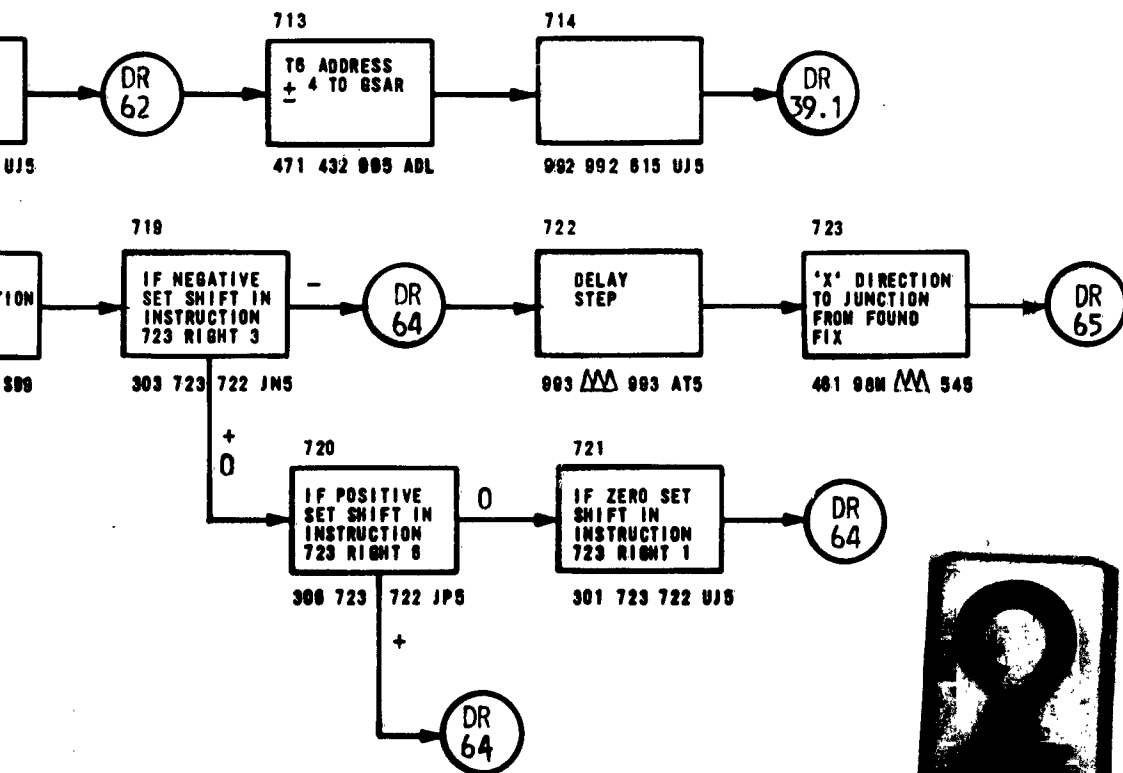
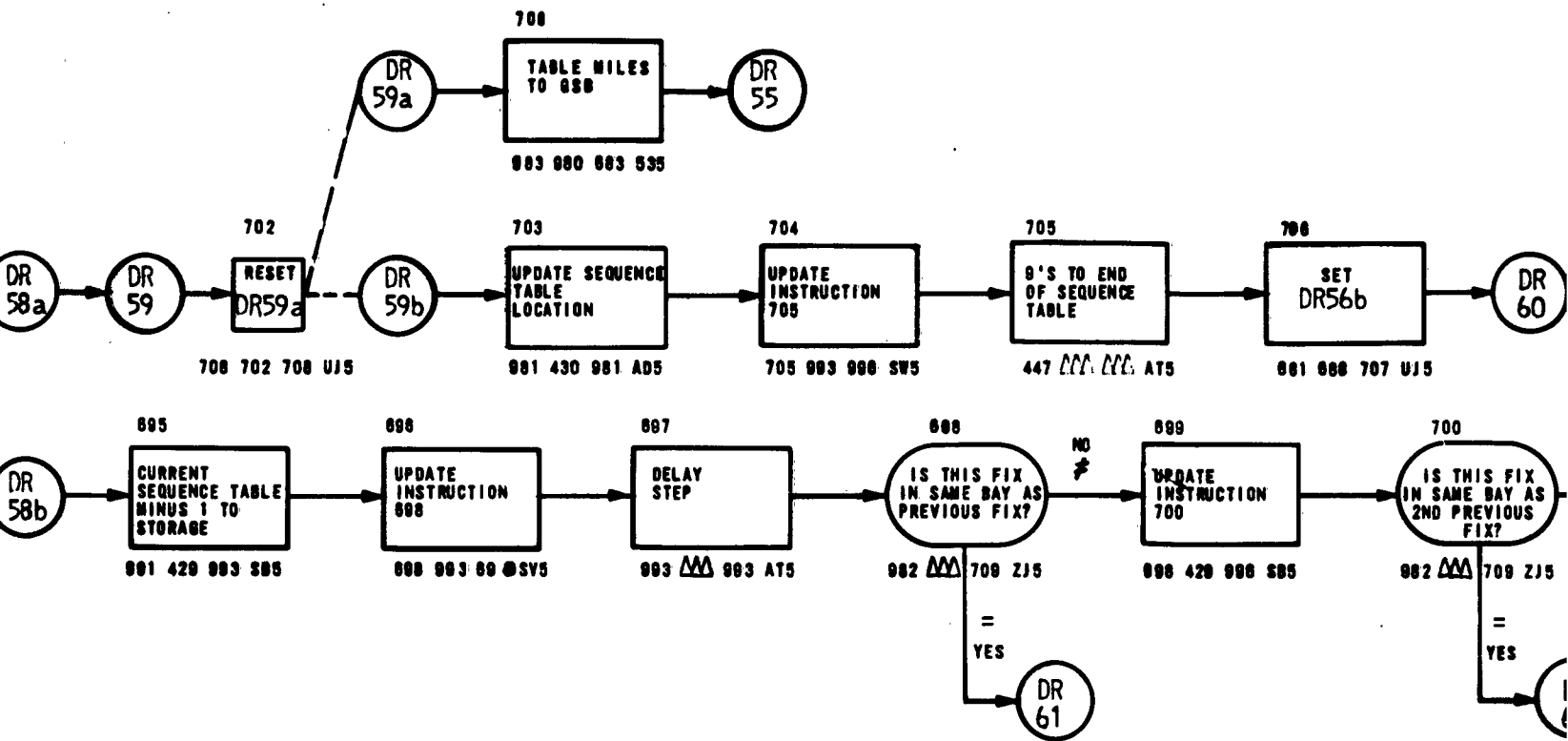


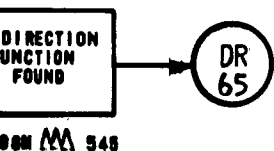
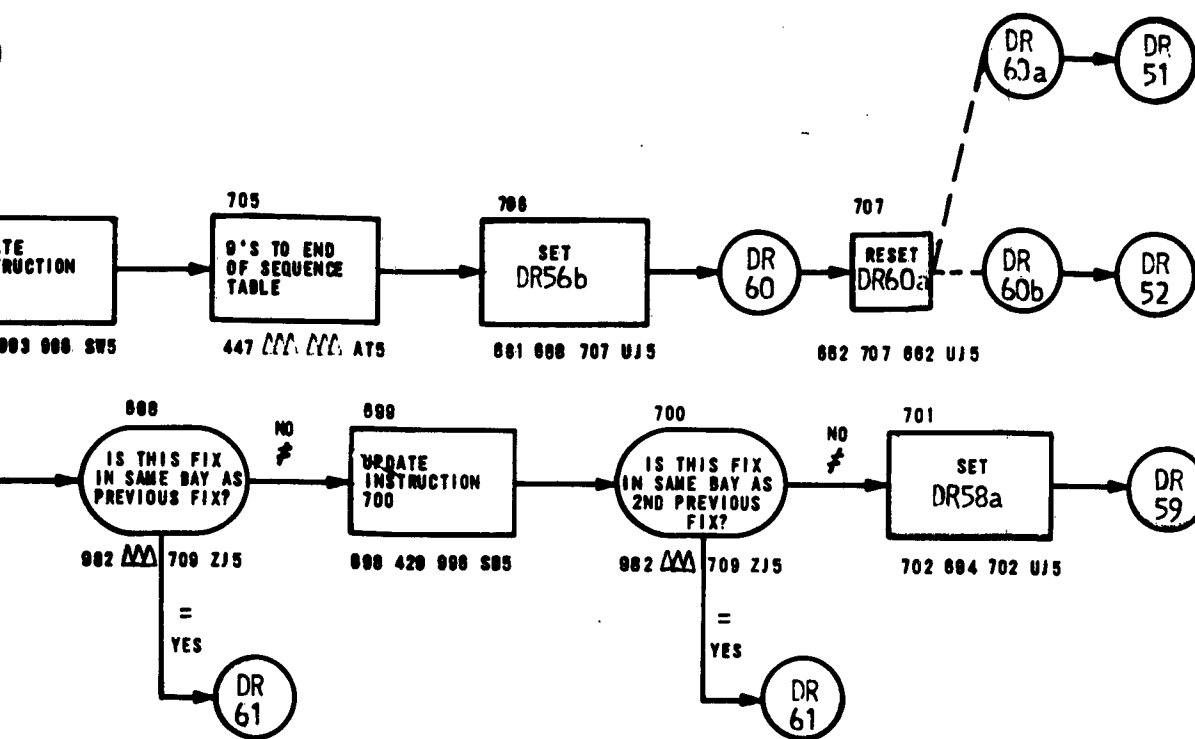


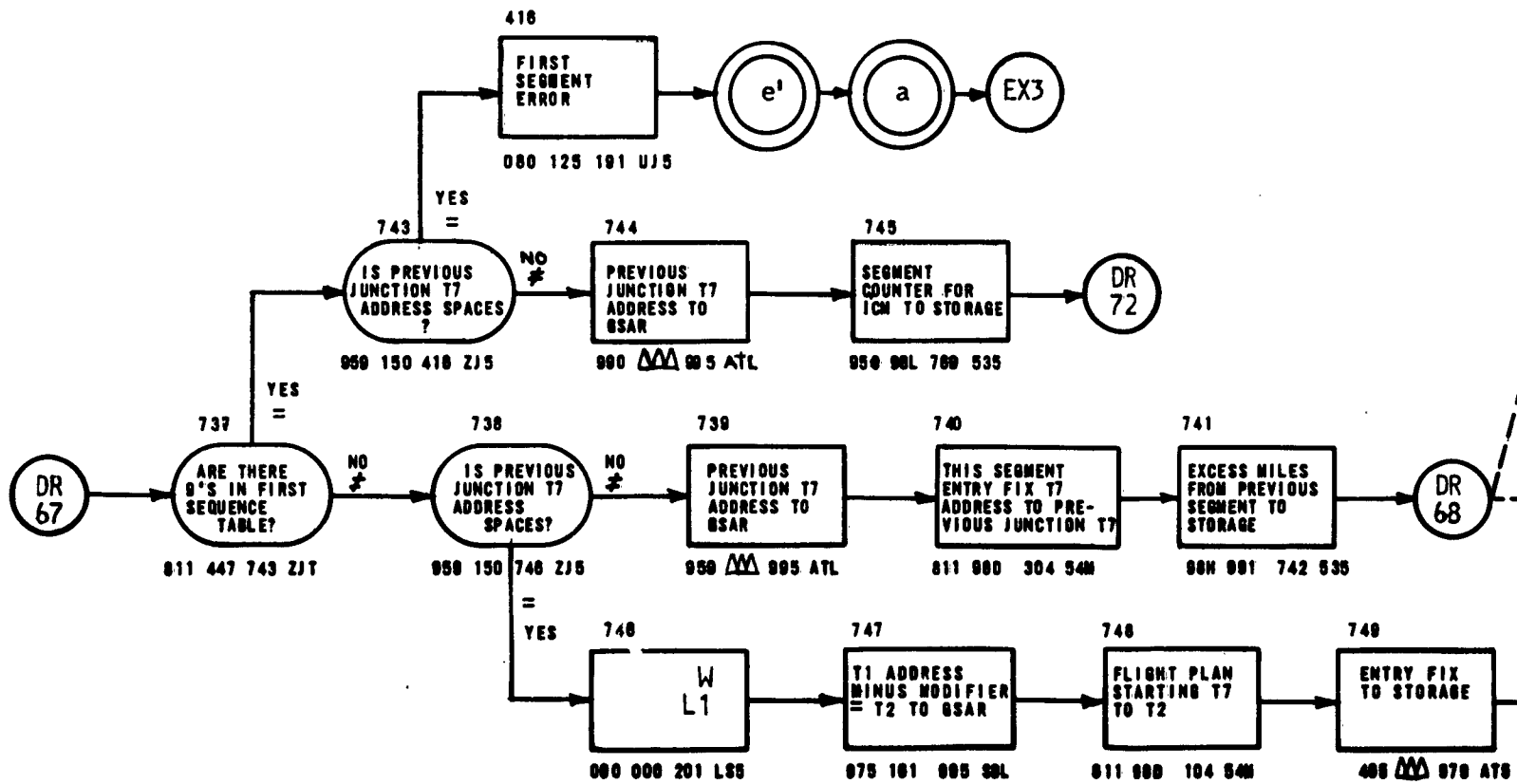
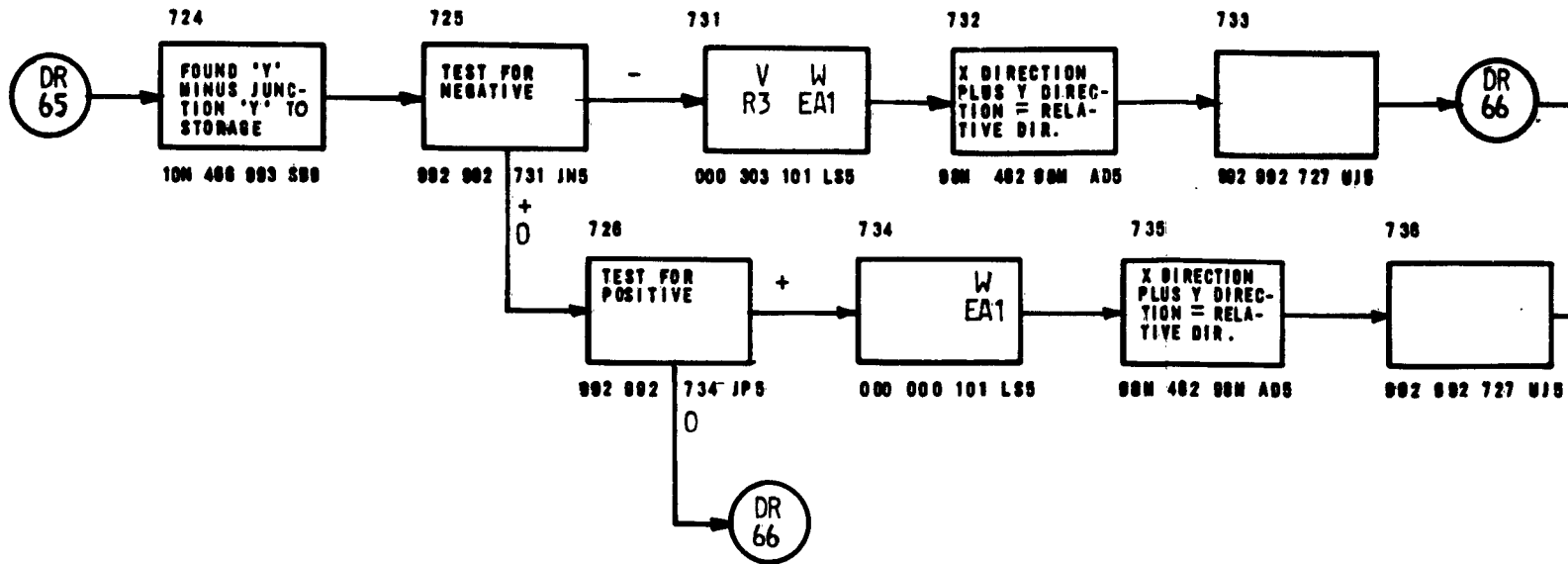




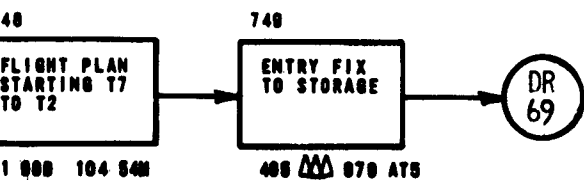
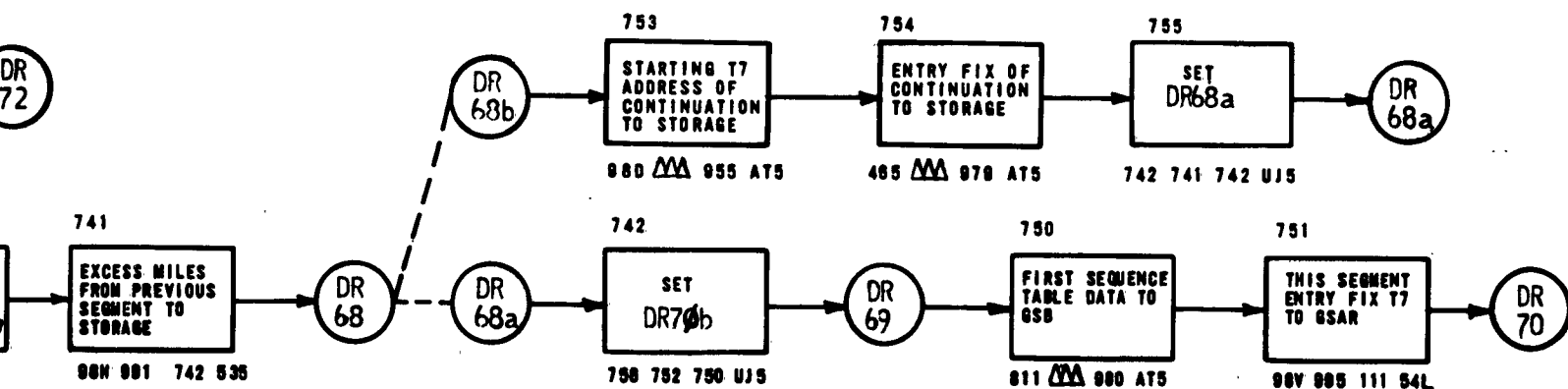
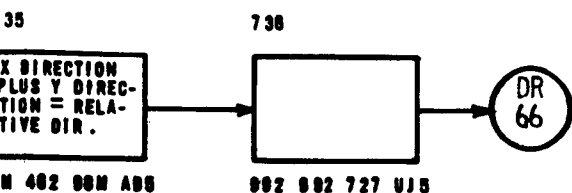
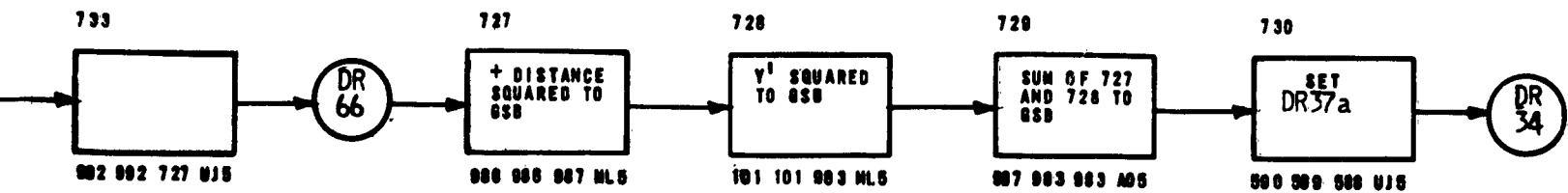


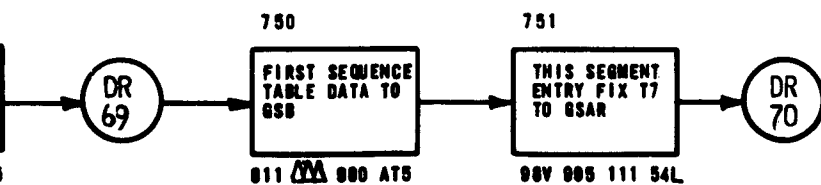
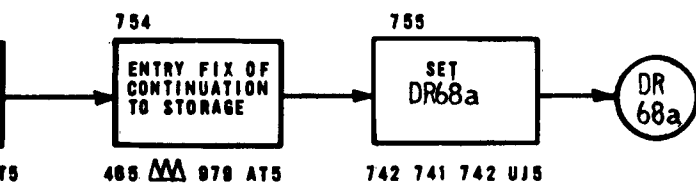
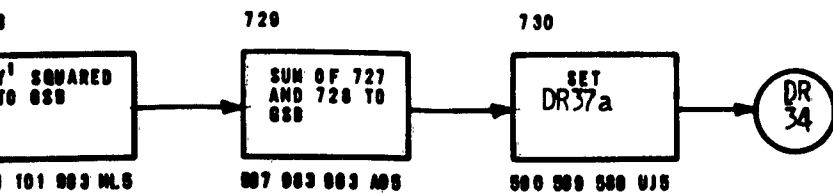


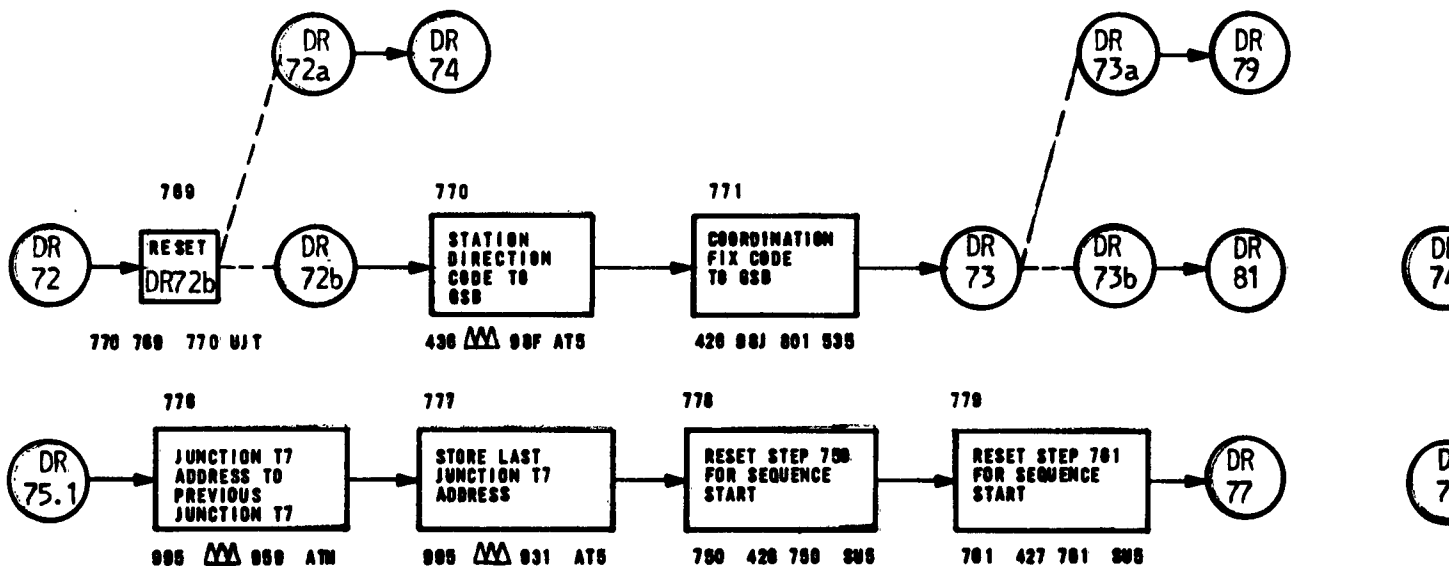
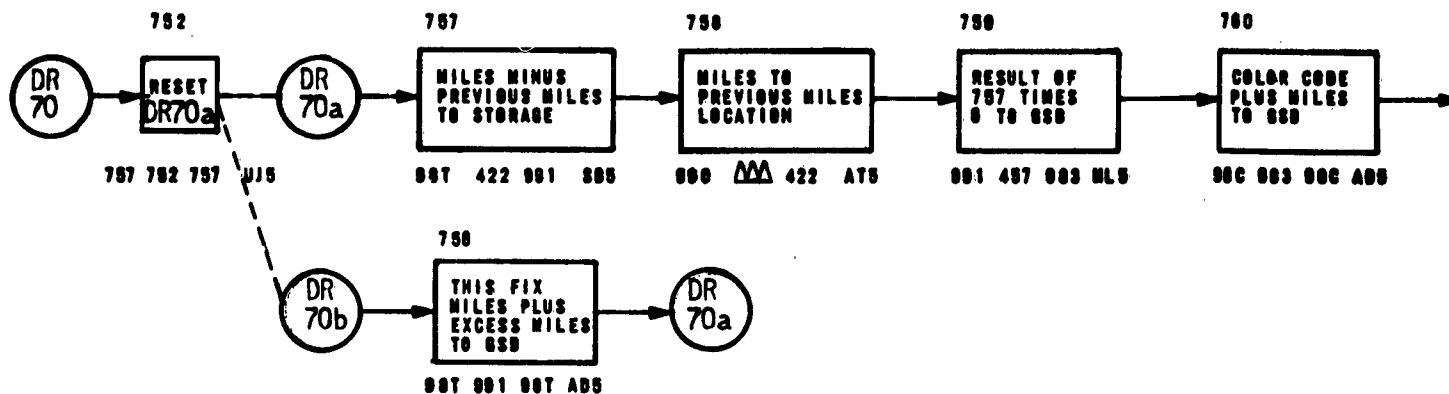




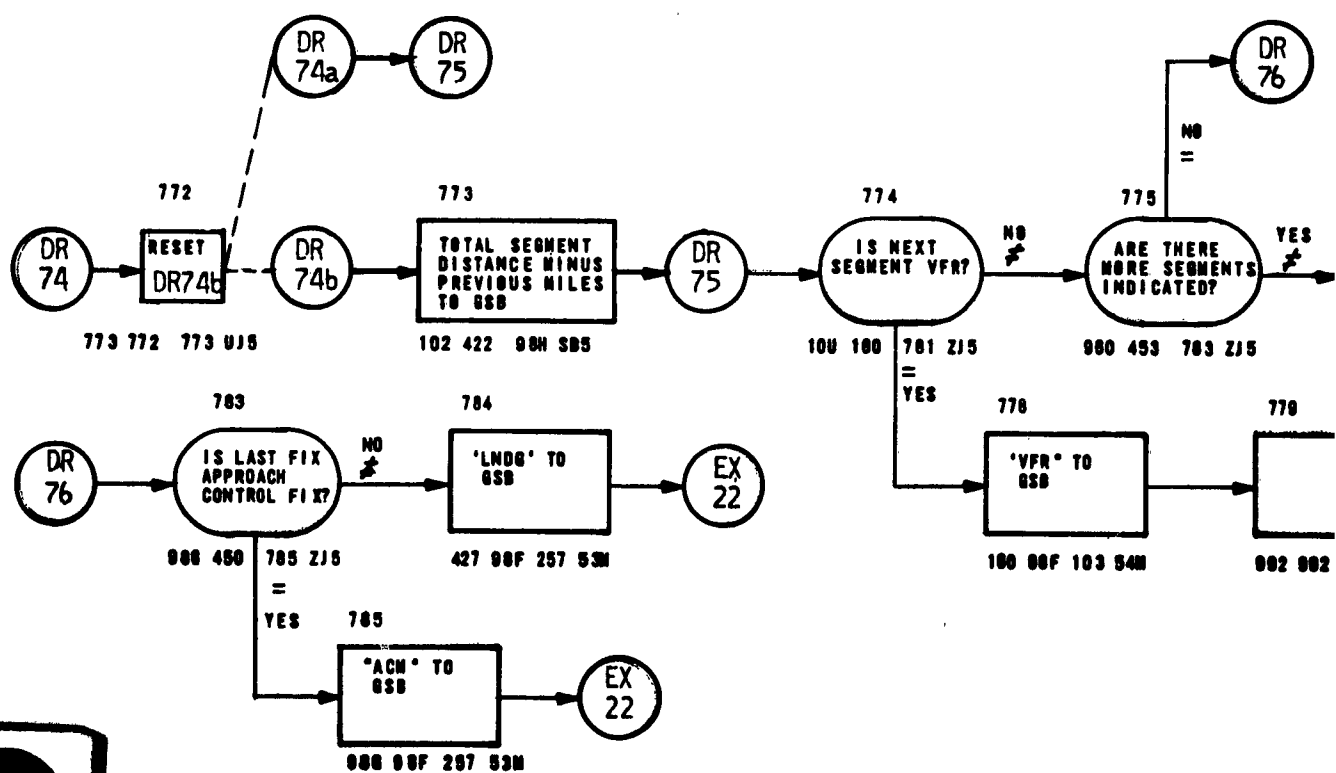
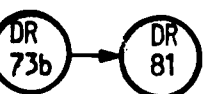
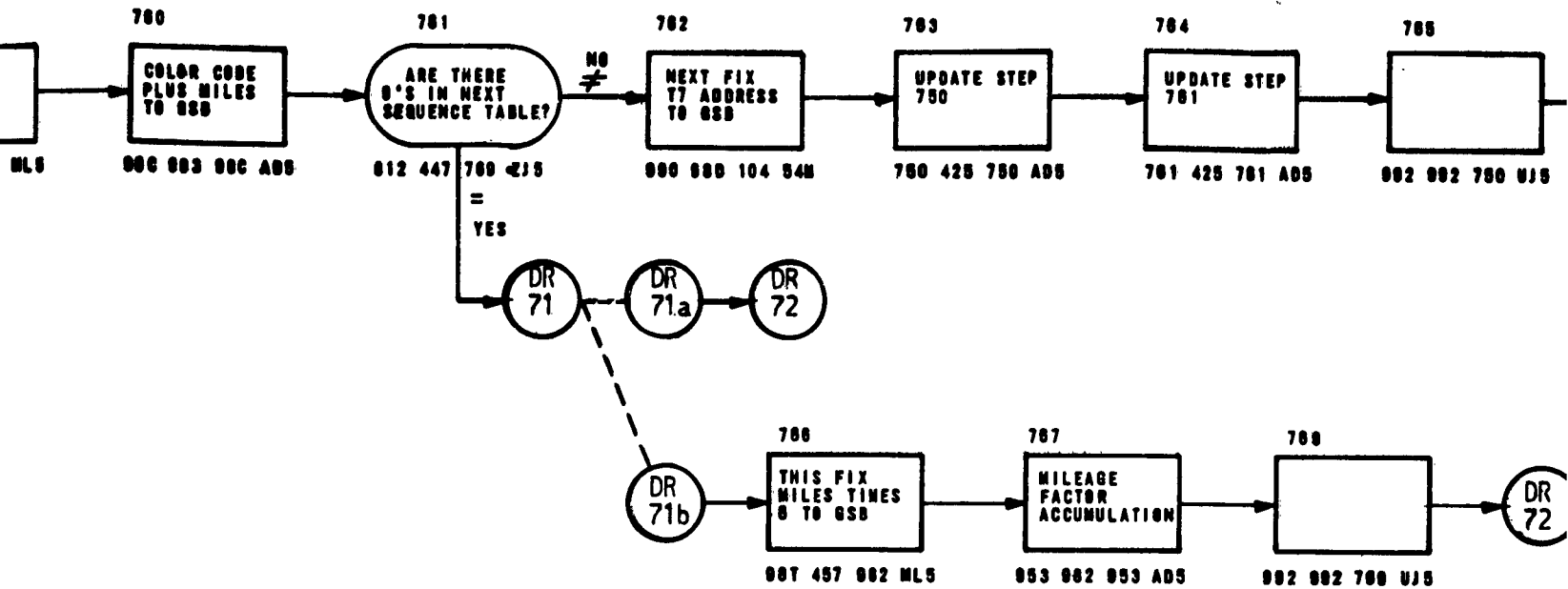
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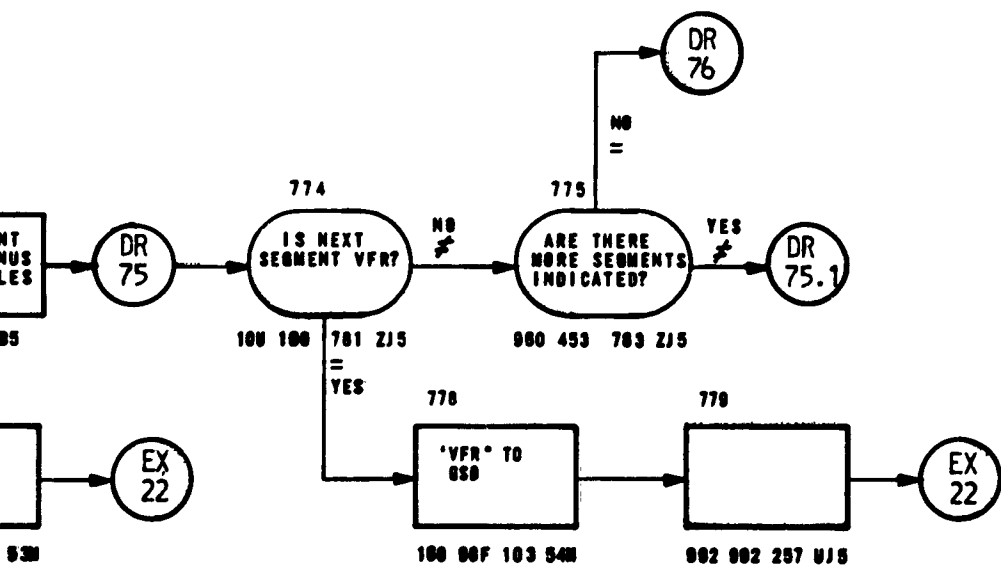
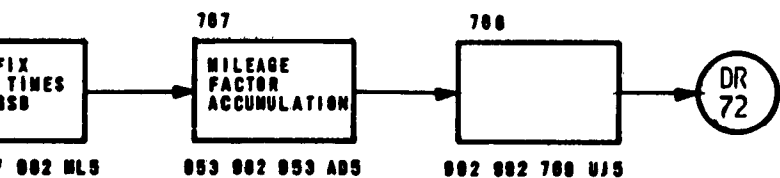
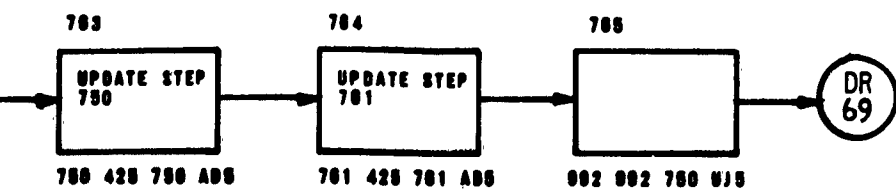






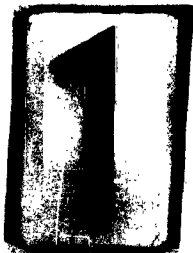
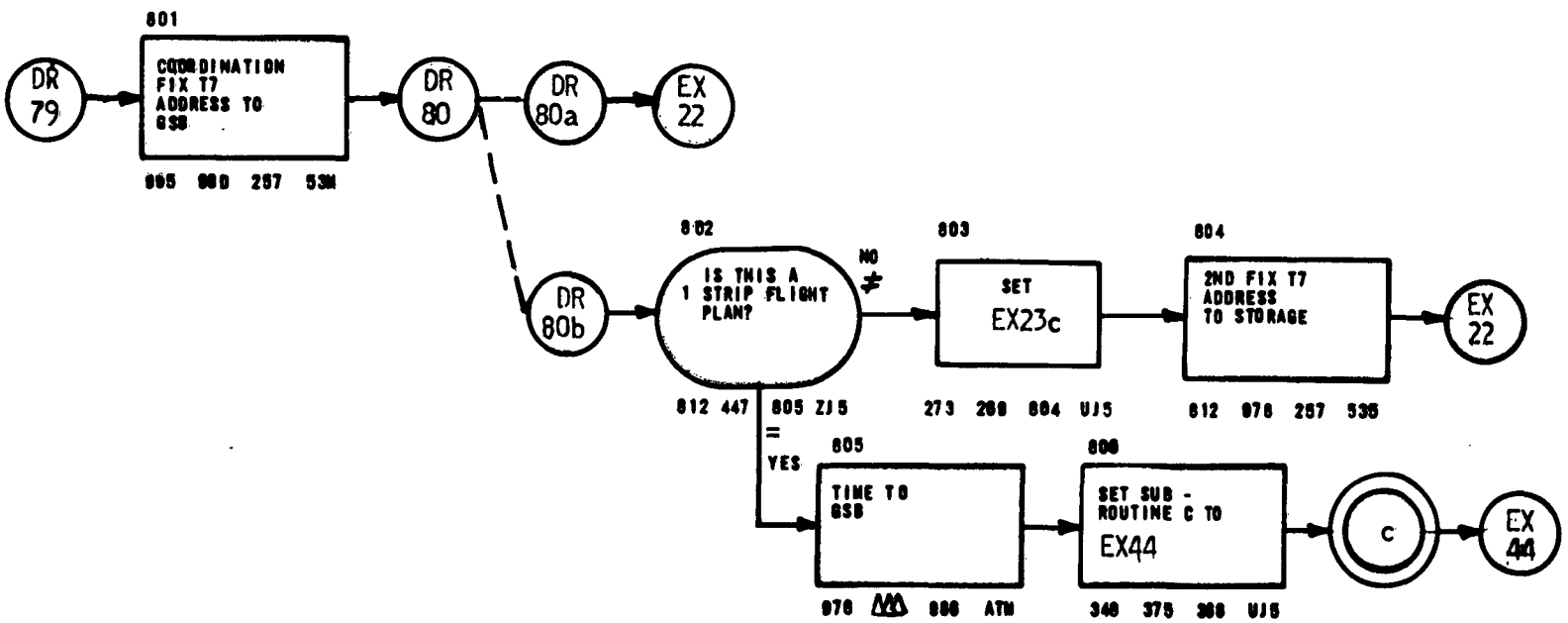
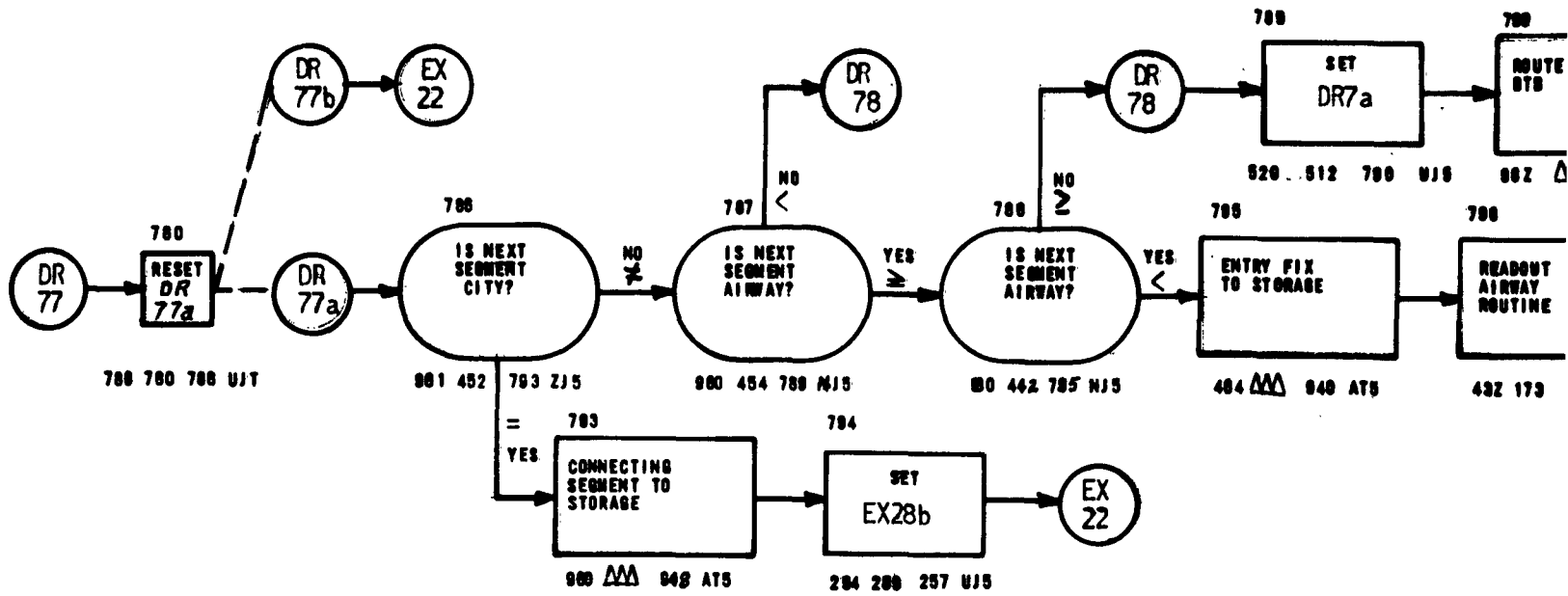
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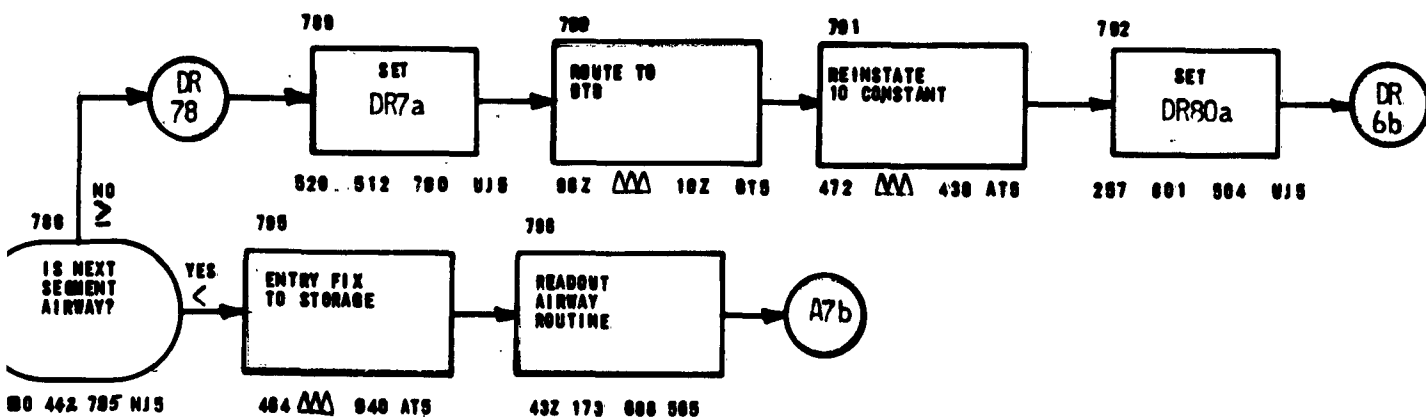


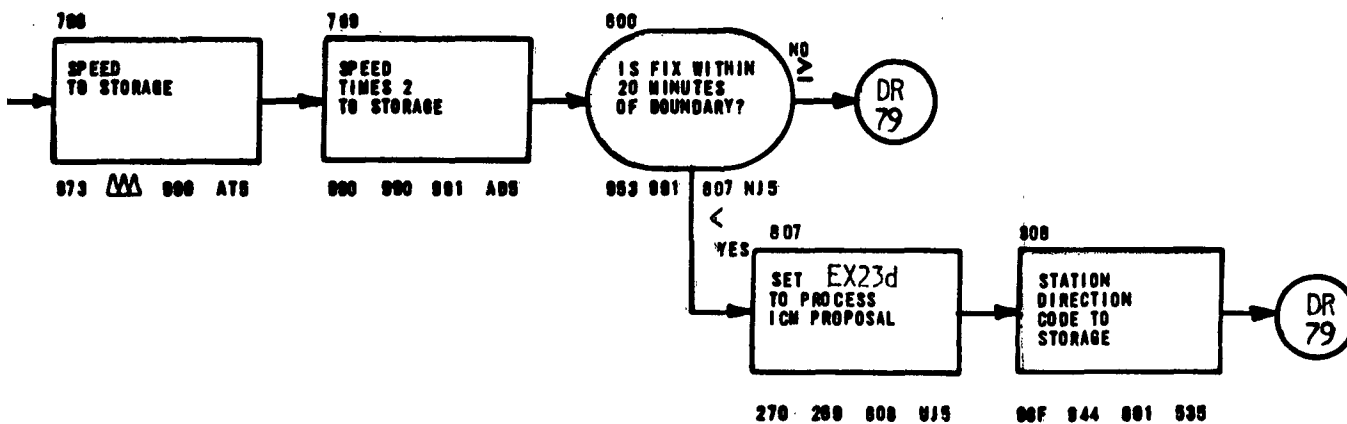
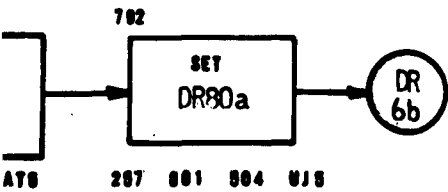


EX 22









CONSTANTS AND FACTORS

150	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	SPACES COMPARATOR
160	1	1	1	1	1	V	F	R	1	1	1	1	VFR COMPARATOR
161	∅	∅	∅	∅	1	∅	1	∅	∅	∅	∅	Δ	ADDRESS MODIFIER
173	6	8	Z	Δ	∅	1	1	2	∅	∅	∅	Δ	AIRWAY LOAD CONSTANT
189	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	2	Δ	Δ	Δ	2 CONSTANT
417	1	1	1	1	1	1	1	1	1	∅	∅	-	DISTANCE COMPARATOR
418	∅	∅	∅	∅	1	1	1	1	1	1	1	1	MASKING FACTOR
419	1	1	1	1	∅	∅	∅	∅	1	1	1	1	MASKING FACTOR
420	Δ	2	1	2	8	∅	∅	∅	Δ	L	A	K	HIGH ALTITUDE FIX TABLE
421	Δ	2	1	2	8	∅	∅	∅	Δ	L	A	K	LOW ALTITUDE FIX TABLE
423	1	1	1	1	∅	2	∅	1	1	1	1	1	PERPENDICULAR TEST FACTOR
424	1	1	1	1	∅	4	∅	1	1	1	1	1	PERPENDICULAR TEST FACTOR
425	Δ	Δ	1	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	1 CONSTANT
426	8	1	1	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	.	COORDINATION FIX CONSTANT AND SECOND SEQUENCE TABLE
427	8	1	2	Δ	Δ	Δ	Δ	Δ	L	N	D	G	LNDG CONSTANT AND THIRD SEQUENCE TABLE
428	1	1	1	1	1	1	1	1	1	3	∅	Δ	30 COMPARATOR
429	Δ	Δ	Δ	Δ	Δ	1	Δ	Δ	Δ	Δ	Δ	Δ	1 CONSTANT
430	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	1	Δ	Δ	Δ	1 CONSTANT
431	Δ	Δ	Δ	Δ	Δ	Δ	8	1	∅	Δ	Δ	Δ	FIRST SEQUENCE TABLE
433	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	4	-	ADDRESS MODIFIER
434	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	4	Δ	ADDRESS MODIFIER
437	1	1	1	R	1	1	1	∅	1	1	1	1	SDC COMPARATOR
438	1	1	1	1	1	1	1	1	∅	1	∅	1	DISTANCE COMPARATOR
440	1	1	1	1	∅	2	4	∅	1	1	1	1	ALTITUDE COMPARATOR
441	1	A	1	1	1	1	1	1	1	1	1	1	ROUTE TYPE COMPARATOR
442	1	1	1	1	1	.	1	1	1	1	1	1	ROUTE TYPE COMPARATOR

CONSTANTS AND FACTORS

443	1	1	1	1	-	1	1	1	1	1	1	1
444	1	1	1	1	1	A	1	1	1	1	1	1
445	1	1	1	1	9	1	1	1	1	1	1	1
446	1	1	1	-	1	1	1	1	1	1	1	1
447	1	1	1	1	9	9	9	Z	1	1	1	1
448	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	1	Δ	Δ
449	1	1	1	1	1	1	1	1	∅	∅	1	1
450	1	1	∅	∅	1	1	1	1	A	1	1	1
451	1	1	1	1	∅	∅	∅	1	1	1	1	1
452	T	T	Y	1	1	1	1	1	1	1	1	1
453	1	1	1	1	.	.	.	.	.	.	1	1
454	1	1	1	1	.	1	1	1	1	1	1	1
455	∅	∅	∅	∅	1	1	2	6	7	∅	∅	Δ
456	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	5	Δ
457	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	6	Δ
460	1	1	1	1	1	O	T	P	1	1	1	1
461	Δ	Δ	Δ	1	W	Δ	1	E	1	.	Δ	.
462	Δ	Δ	Δ	Δ	Δ	Δ	N	.	Δ	S	.	Δ
470	Δ	Δ	∅	1	2	3	4	5	6	7	Δ	Δ
472	1	1	1	1	1	1	1	1	∅	1	∅	Δ

ROUTE TYPE COMPARATOR
 JUNCTION FIX COMPARATOR
 JUNCTION FIX COMPARATOR
 JUNCTION FIX COMPARATOR
 SEQUENCE TABLE END
 1 CONSTANT
 MASKING FACTOR
 MASKING FACTOR
 MASKING FACTOR
 CONTINUATION COMPARATOR
 END OF ROUTE COMPARATOR
 ROUTE TYPE COMPARATOR
 SIN/COS TABLE ADDRESS
 ROUNDING FACTOR
 6 CONSTANT
 ALTITUDE COMPARATOR
 DIRECTION CONSTANT
 DIRECTION CONSTANT
 FLIGHT DIRECTION SHIFT
 DISTANCE COMPARATOR

GSB READOUT VI

989	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	2	∅	Δ
-----	---	---	---	---	---	---	---	---	---	---	---	---

MODIFIER

GSB READOUT VII

987	1	1	1	1	1	1	1	1	4	9	∅	1
988	1	1	1	1	1	1	1	1	2	4	∅	1
989	1	1	1	1	1	1	1	1	4	8	5	1

X MAXIMUM

X MINIMUM

Y MAXIMUM

GSB READOUT VIII

989	1	1	1	1	1	1	1	1	2	5	0	1
-----	---	---	---	---	---	---	---	---	---	---	---	---

Y MINIMUM

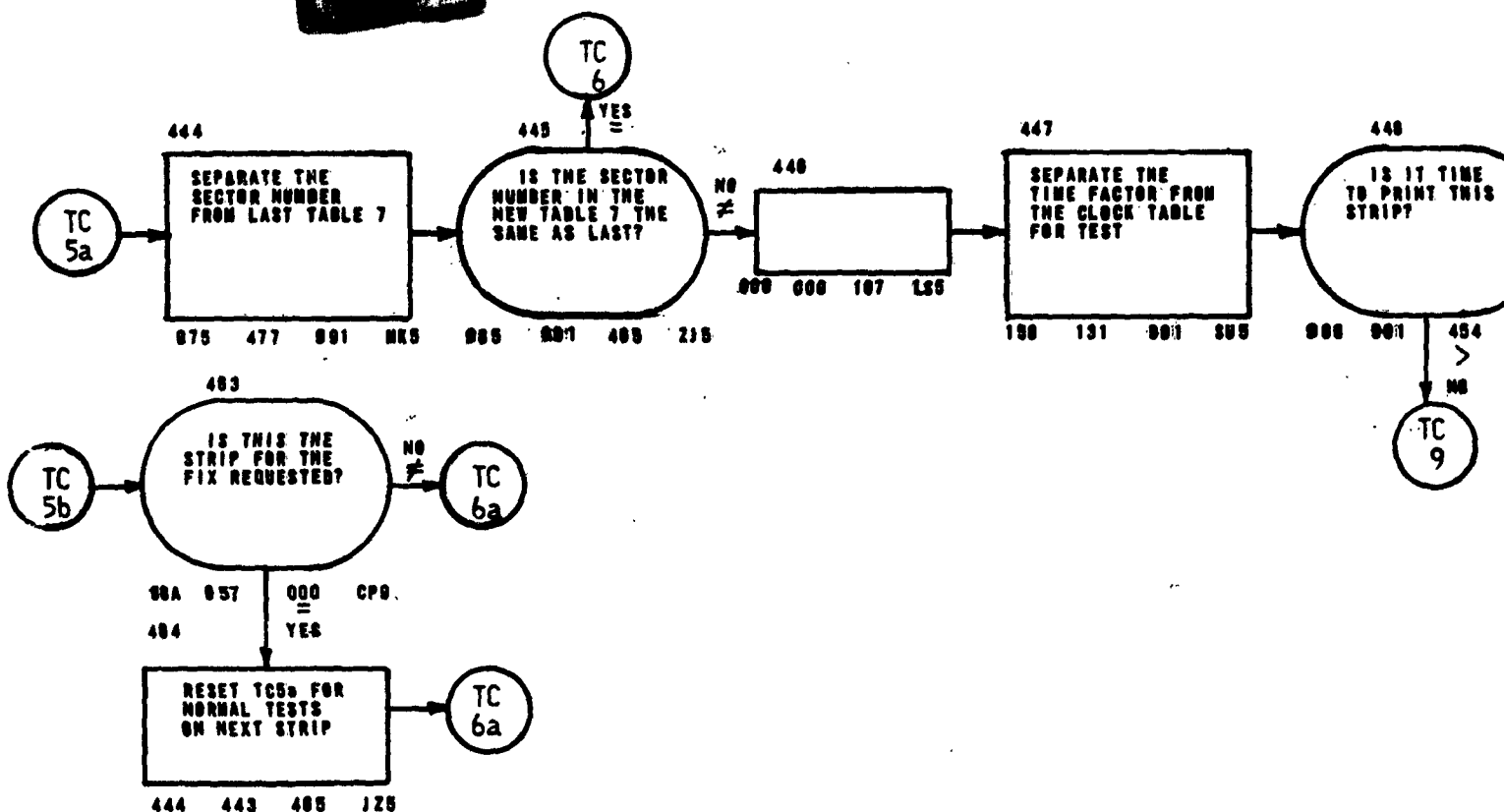
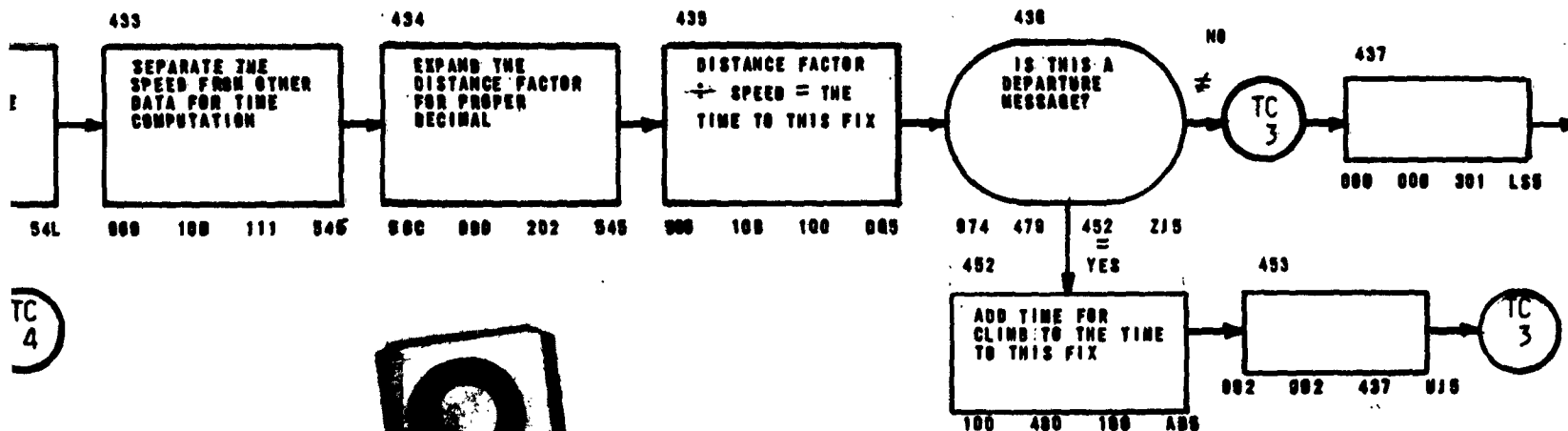
GSB READOUT IX

988	∅	∅	∅	∅	∅	∅	∅	∅	∅	∅	∅	1
-----	---	---	---	---	---	---	---	---	---	---	---	---

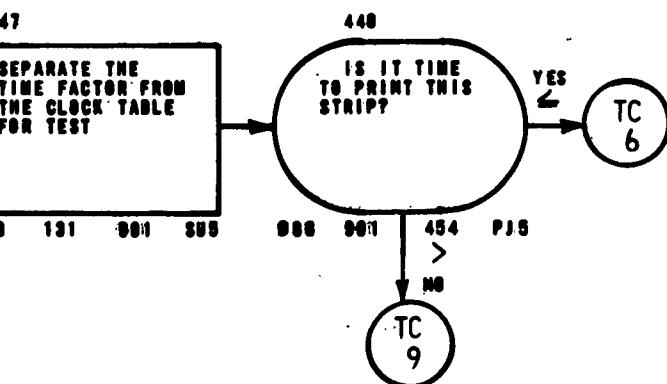
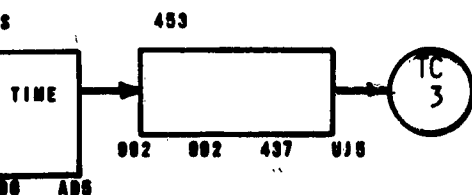
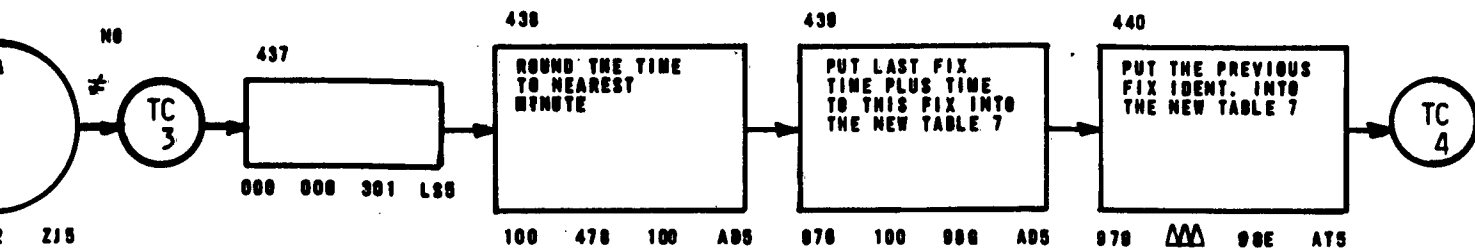
MASKING FACTOR

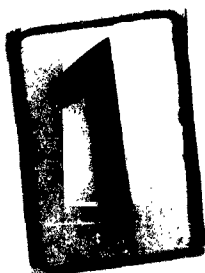
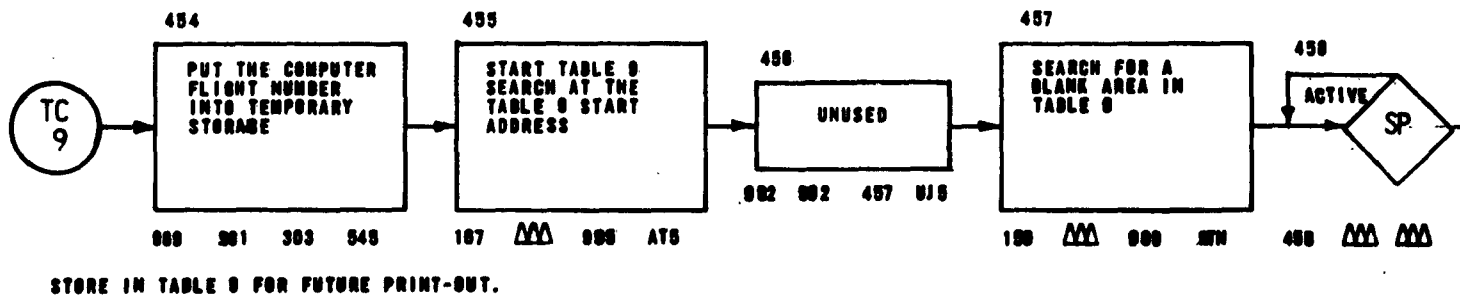
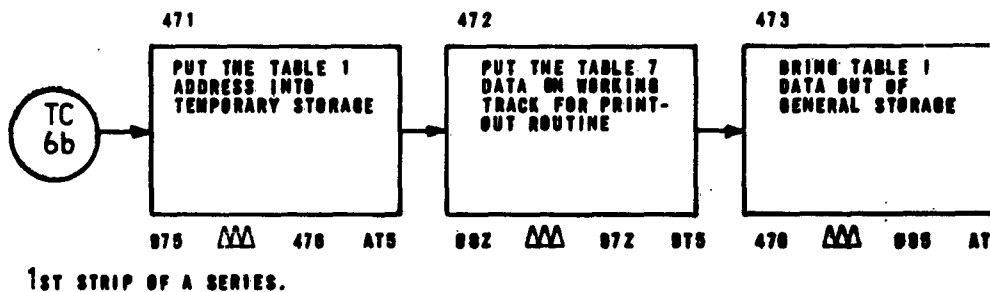
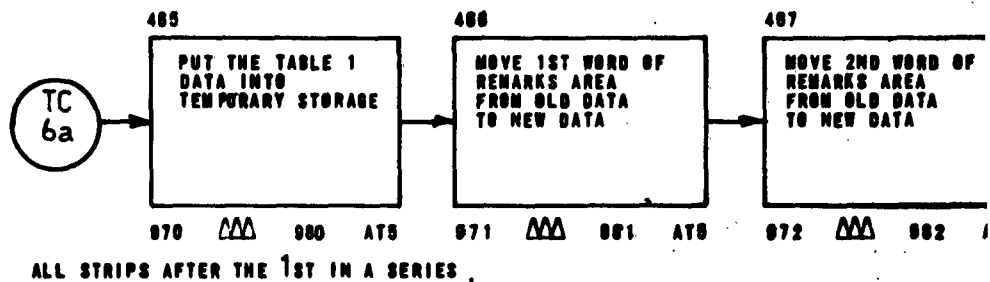
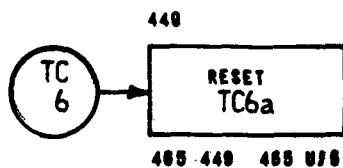
APPENDIX VII

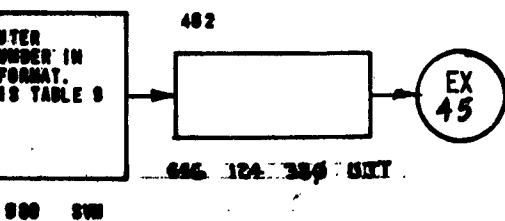
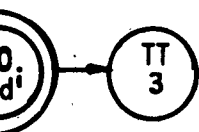
TIME COMPUTATION ROUTINE



TC5b is set by a readout request for a strip which was stored for future print-out. All strips will be printed, regardless of time until all strips within the same sector as the requested strip are printed.







124	Δ	Δ	Δ	Δ	Δ	Δ	X	X	X	Δ	Δ	Δ	Machine Error code.
131	X	X	X	X	X	X	Ø	Ø	Ø	Ø	Ø	Ø	The current Clock Table record for this ten minute period.
150	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
151	i	i	i	i	i	i	P	i	i	i	i	i	
158	i	z	i	i	i	i	i	i	i	i	i	i	i's only used, with 1st 3 characters replaced by 1st 3 characters in 131 above.
167	Δ	Δ	Δ	Δ	1	1	2	2	Ø	Ø	Ø	Δ	
477	Δ	Δ	i	i	i	i	i	i	i	i	i	i	
478	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	5	Δ	Rounding constant.
479	i	i	i	i	i	i	D	i	i	i	i	i	Departure comparator.
480	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	3	Ø	Elapsed time update constant.
957	Δ	Δ	Δ	Δ	X	X	X	X	X	X	X	X	Fix Comparator for strip readout.

The remarks beside the above constants, factors and working storages define the prime purpose as used in this routine. The flow charts will define any secondary usage of these locations.

APPENDIX VIII

TAILORING ROUTINE

WORD	Ø												1												2												3								
CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5		
TRACK 96																																													
TABLE 2	D	P	T	R	Δ	1	J	C	T	2	M	D	A	W	Y	Δ	2	J	C	T	3	R	D	A	W	Y	Δ	3	J	C	T	4	T	H	A	W	Y		
TRACK 95																																													
CONT. TABLE	7	J	C	T	8	T	H	A	W	Y	Δ	8	J	C	T	9	T	H	A	W	Y	Δ	9	J	C	T	10	T	H	A	W	Y	Δ	10	J	C	T	11	T	H	A	W	Y		
FIELD	M												L												K												J								

WORD	Ø												1												2												3											
CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5					
FIELD																																																

WORD	Ø											1											2											3										
CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	
TRACK 94	2	J	C	T	Δ	3	J	C	T	4	T	H	A	W	Y	Δ	4	J	C	T	5	T	H	A	W	Y	Δ	5	J	C	T	6	T	H	A	W	Y	
TRACK 95	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	1	Δ																																	
	9	J	C	T	10	T	H	A	W	Y	Δ	10	J	C	T	11	T	H	A	W	Y	Δ	11	J	C	T	12	T	H	A	W	Y	Δ	12	J	C	T	13	T	H	A	W	Y	
FIELD	M											L											K											J										

NOTE: THE ABOVE EXAMPLE ASSUMES THAT THE SEGMENT COUNTER WAS 4 (i.e., THE FIX CONCERNED IS ON THE ROUTE OF FLIGHT AFTER THE 3rd JUNCTION BUT NOT AFTER THE 4th JUNCTION.) 3 ROUTE SEGMENTS HAVE BEEN REMOVED.

NO



**ROUTE TAILORING PATTERN
HIGH SPEED DRUM**

3										4										5										6										7																			
9	8	7	6	5	4	3	2	1	S	9	8	7	6	5	4	3	2	1	S	9	8	7	6	5	4	3	2	1	S	9	8	7	6	5	4	3	2	1	S	9	8	7	6	5	4														
4	T	H	A	W	Y	Δ	4	J	C	5	T	H	A	W	Y	Δ	5	J	C	6	T	H	A	W	Y	Δ	6	J	C	7	T	H	A	W	Y	Δ	7	J	C	DEST	DEST	DEST	DEST	DEST	DEST	DEST	DEST	DEST	DEST										
11	T	H	A	W	Y	Δ	11	J	C	12	T	H	A	W	Y	Δ	12	J	C	13	T	H	A	W	Y	Δ	13	J	C	14	T	H	A	W	Y	Δ	14	J	C	15	T	H	A	W	Y	Δ	15	J	C	DEST	DEST	DEST	DEST	DEST	DEST	DEST	DEST	DEST	DEST
J										H										G										F										E																			

ROUTE TAILORING PATTERN
GENERAL STORAGE BUFFER

[illegible]

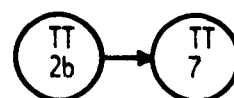
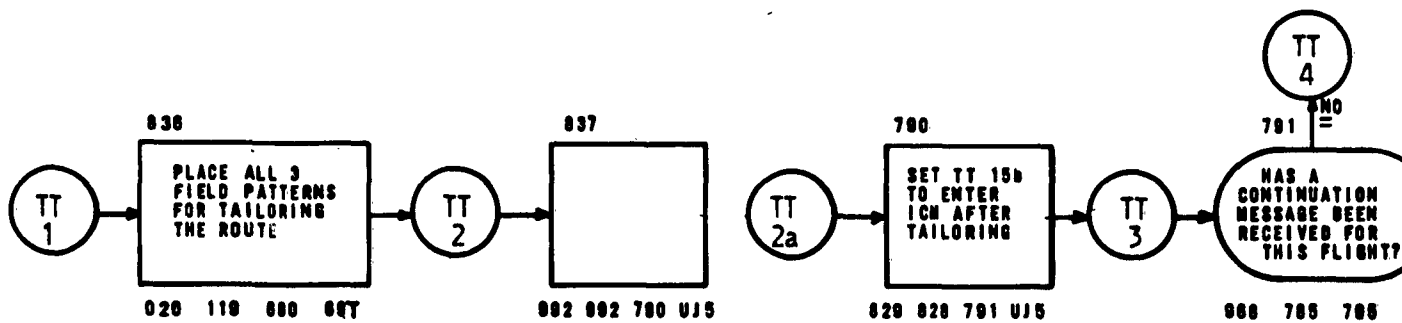
EXAMPLE OF THE RESULTS OF TAILORING THE ROUTE

3										4										5										6										7																			
1	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4					
6	T	H	A	W	Y	Δ	6	J	C	T	7	T	H	A	W	Y	Δ	7	J	C	T	8	T	H	A	W	Y	Δ	8	J	C	T	9	T	H	A	W	Y	Δ	C	D	E	S	T	Y	D	E	S	T	:	:	Δ	Δ	Δ	Δ				
13	T	H	A	W	Y	Δ	13	J	C	T	14	T	H	A	W	Y	Δ	14	J	C	T	15	T	H	A	W	Y	Δ	D	E	S	T	.	.	.	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	C	F	N	Δ	Δ	Δ						
J										H										G										F										E																			

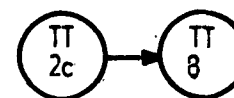
NOTE: TRACK 96 REMAINS UNCHANGED BY TAILORING



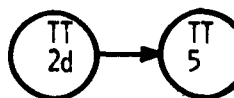




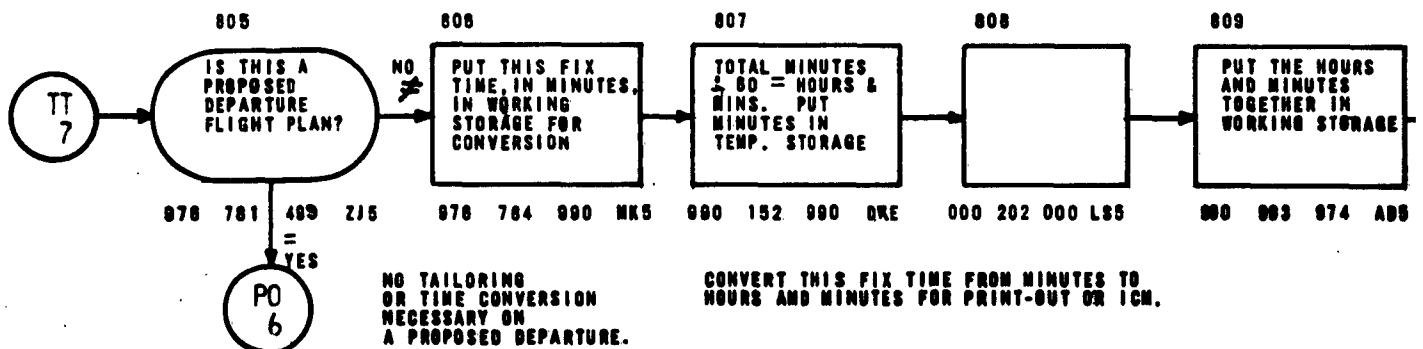
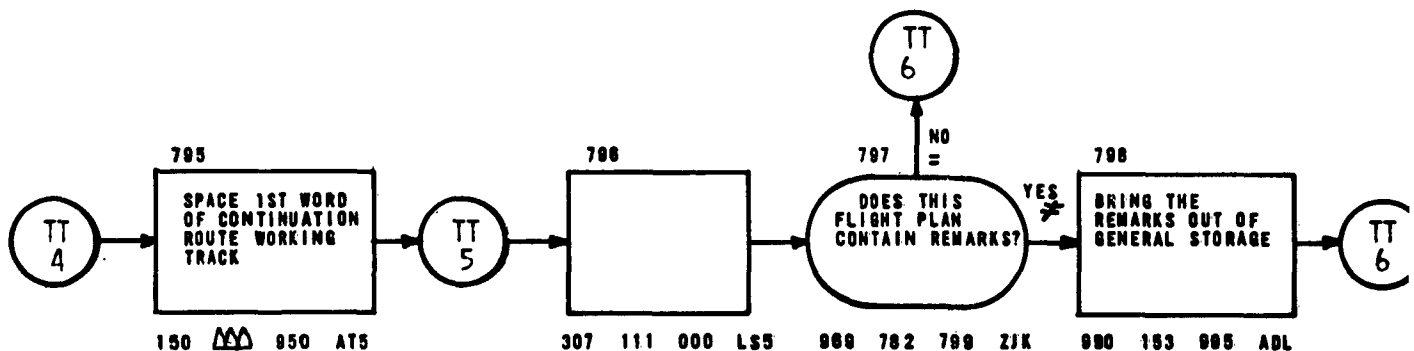
ALL STRIPS AFTER THE 1ST IN A SERIES. THE CONTINUATION ROUTE AND REMARKS ARE ALREADY ON THEIR WORKING TRACKS.

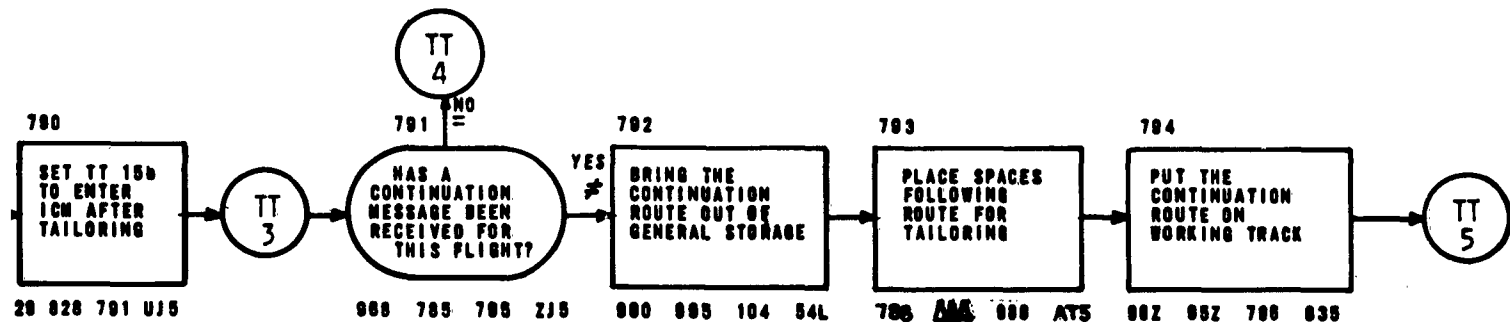


PERFORM ADDITIONAL TAILORING FOR ICM, IF NECESSARY, BEFORE GOING TO THE ICM ROUTINE.



'X' MESSAGE, RIDER JUST PRINTED. CONTINUATION ROUTE AND ORIGINAL ROUTE ON WORKING TRACKS. COMPLETE TAILORING IS NECESSARY TO COMBINE ROUTES BEFORE GOING TO ICM.

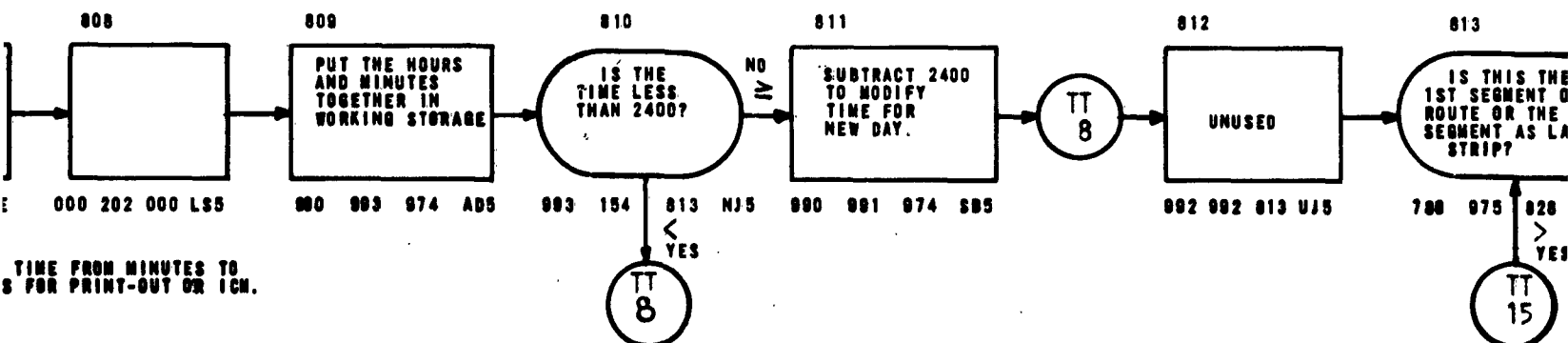
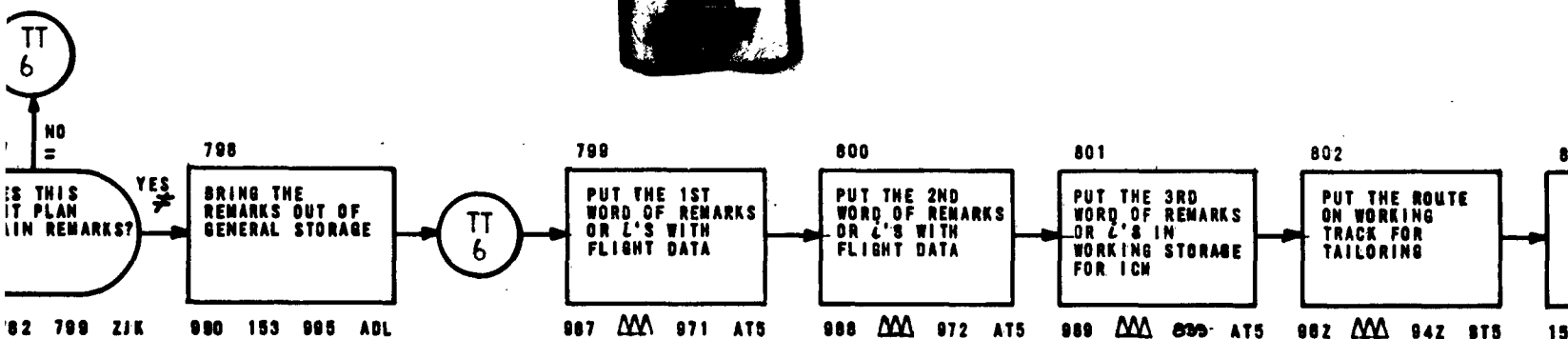


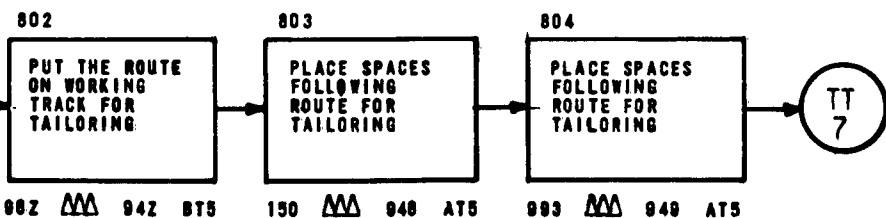
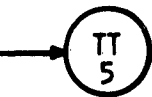


TT 7 { ALL STRIPS AFTER THE 1ST IN A SERIES. THE CONTINUATION ROUTE AND REMARKS ARE ALREADY ON THEIR WORKING TRACKS.

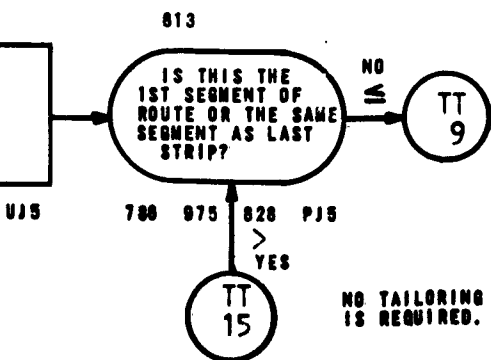
TT 8 { PERFORM ADDITIONAL TAILORING FOR ICM, IF NECESSARY, BEFORE GOING TO THE ICM ROUTINE.

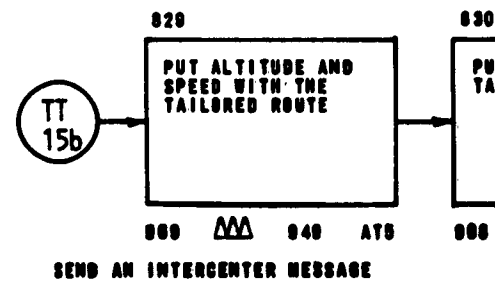
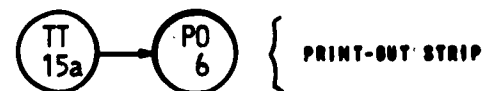
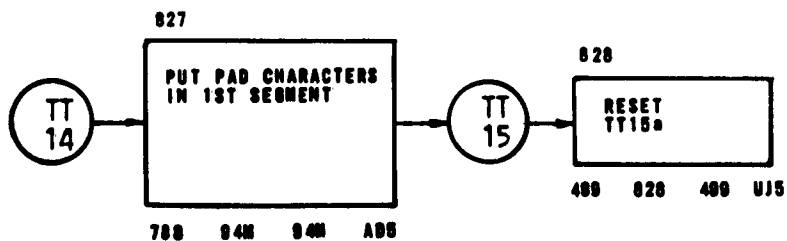
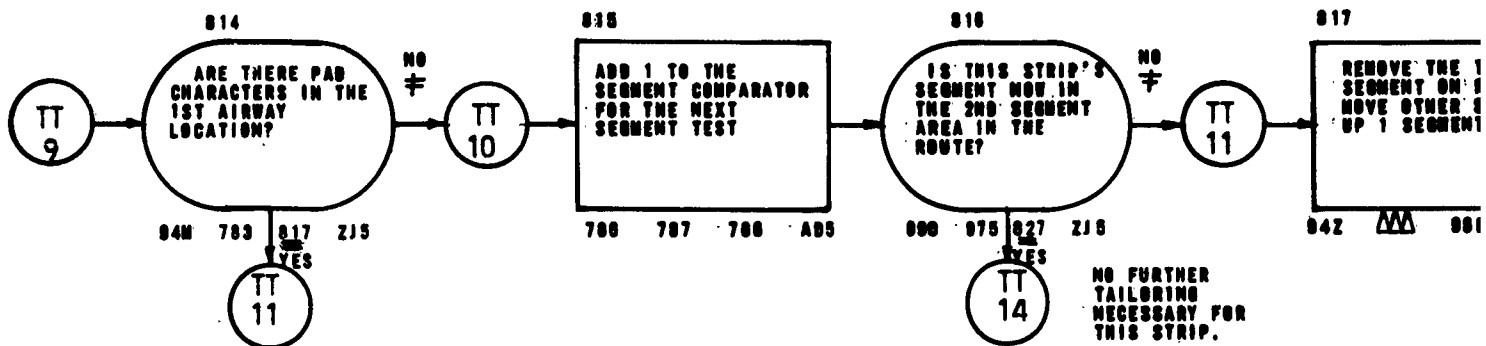
TT 5 { 'X' MESSAGE, RIDER JUST PRINTED. CONTINUATION ROUTE AND ORIGINAL ROUTE ON WORKING TRACKS. COMPLETE TAILORING IS NECESSARY TO COMBINE ROUTES BEFORE GOING TO ICM.



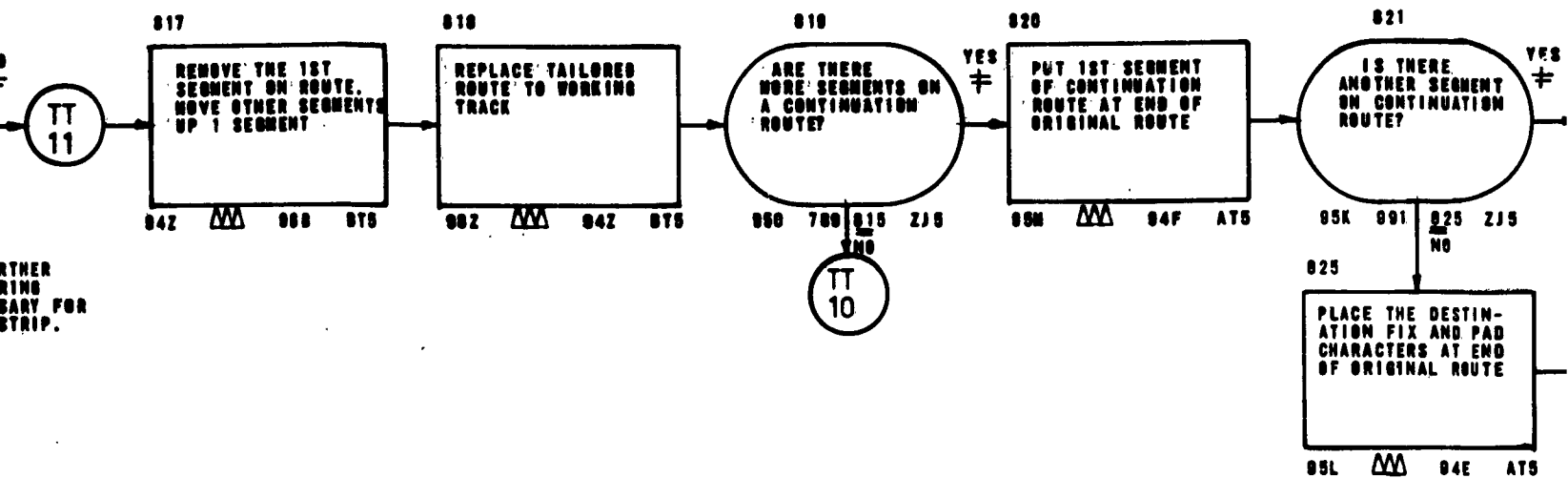


98Z M 94Z BT5 150 M 948 AT5 993 M 949 AT5

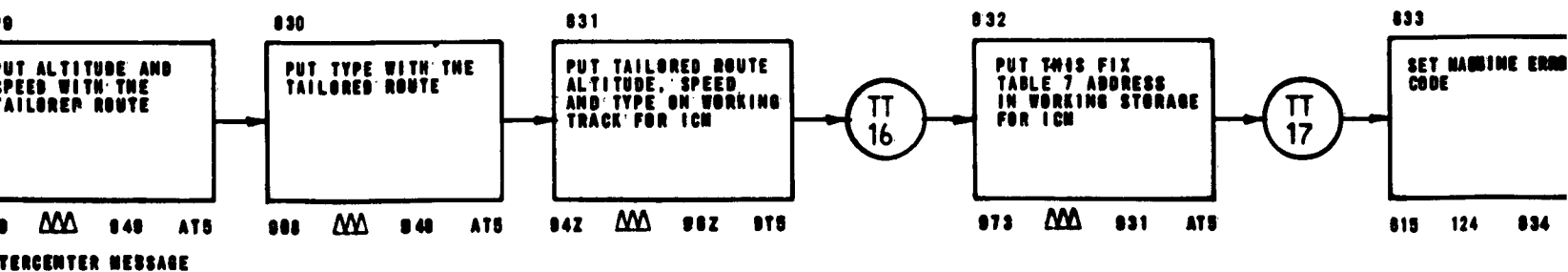




FURTHER
 RING
 BARY FOR
 STRIP.

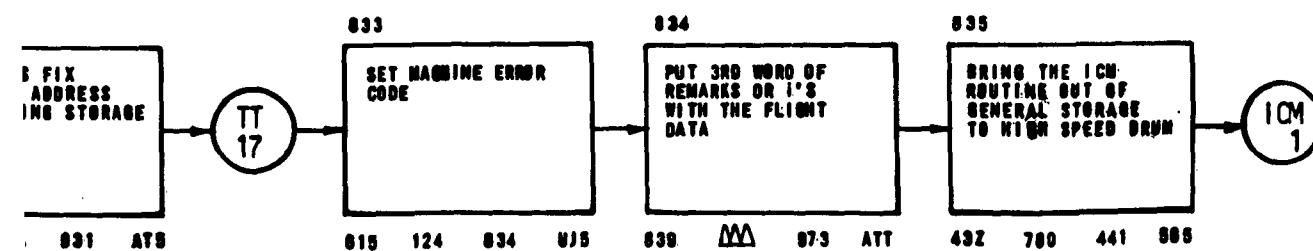
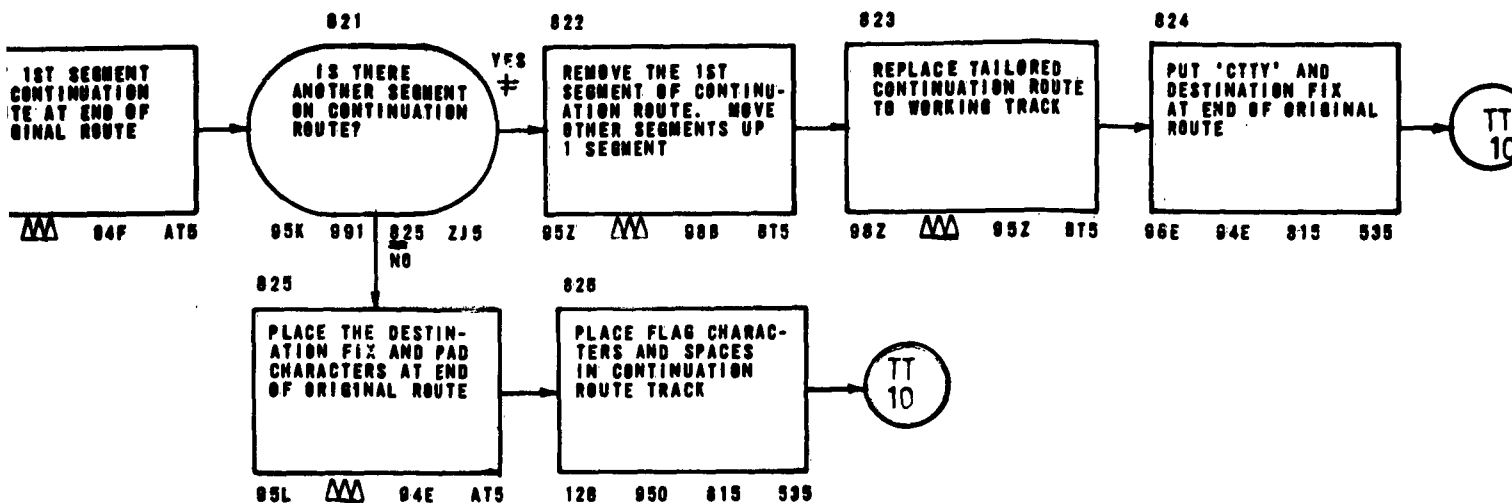


PO 6 { PRINT-OUT STRIP



VERCENTER MESSAGE





128	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	1	Δ	All of continuation route removed flag constant.
150	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Spaces comparator.
152	0	0	0	0	0	0	0	0	0	6	0	0	Time conversion constant.
153	0	0	0	0	3	1	2	0	0	0	0	0	Remarks Table address modifier.
154	Δ	Δ	Δ	Δ	Δ	Δ	Δ	2	4	0	0	Δ	New day time comparator.
780	5	2	3	Δ	0	1	1	4	4	0	0	Δ	ICM routine load constant.
781	P	i	i	i	i	i	i	i	i	i	i	i	Proposed comparator.
782	i	i	i	i	i	i	i	i	Δ	Δ	Δ	Δ	Remarks address comparator.
783	i	i	i	i	i	.	.	.	.	.	.	Δ	Tailored route comparator.
784	i	i	i	i	i	i	i	Δ	Δ	Δ	Δ	Δ	Masking constant.
785	5	i	i	i	i	i	i	i	i	i	i	i	Table 7 address comparator.
786	i	i	i	i	i	i	i	0	2	i	i	i	Segment comparator.
787	i	i	i	i	i	i	i	0	1	i	i	i	Segment comparator update constant.
788	.	.	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Route fill constant.
789	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	i	i	i	More route comparator.
839	X	X	X	X	X	X	X	X	X	X	X	X	Working storage for 3rd word of remarks until put with ICM data.

The remarks beside the above constants and factors define the prime purpose as used in this routine. The flow charts will define any secondary usage of these locations.

APPENDIX IX

HIGH-SPEED PRINTER PRINTOUT ROUTINE

ROUTE PACKING PATTERN
HIGH SPEED DRUM

3										4										5										6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
3	2	1	S	II	9	8	7	6	5	4	3	2	1	S	II	9	8	7	6	5	4	3	2	1	S	II	9	8	7	6	5	4	3	2	1	S	II	9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Δ	3	J	C	T	4	T	H	A	W	Y	Δ	4	J	C	T	5	T	H	A	W	Y	Δ	5	J	C	T	6	T	H	A	W	Y	Δ	6	J	C	T	7	T	H	A	W	Y	Δ	7	J	C	T	8	T	H	A	W	Y	Δ	8	J	C	T	9	T	H	A	W	Y	Δ	9	J	C	T	10	T	H	A	W	Y	Δ	10	J	C	T	11	T	H	A	W	Y	Δ	11	J	C	T	12	T	H	A	W	Y	Δ	12	J	C	T	13	T	H	A	W	Y	Δ	13	J	C	T	14	T	H	A	W	Y	Δ	14	J	C	T	15	T	H	A	W	Y	Δ	15	J	C	T	16	T	H	A	W	Y	Δ	16	J	C	T	17	T	H	A	W	Y	Δ	17	J	C	T	18	T	H	A	W	Y	Δ	18	J	C	T	19	T	H	A	W	Y	Δ	19	J	C	T	20	T	H	A	W	Y	Δ	20	J	C	T	21	T	H	A	W	Y	Δ	21	J	C	T	22	T	H	A	W	Y	Δ	22	J	C	T	23	T	H	A	W	Y	Δ	23	J	C	T	24	T	H	A	W	Y	Δ	24	J	C	T	25	T	H	A	W	Y	Δ	25	J	C	T	26	T	H	A	W	Y	Δ	26	J	C	T	27	T	H	A	W	Y	Δ	27	J	C	T	28	T	H	A	W	Y	Δ	28	J	C	T	29	T	H	A	W	Y	Δ	29	J	C	T	30	T	H	A	W	Y	Δ	30	J	C	T	31	T	H	A	W	Y	Δ	31	J	C	T	32	T	H	A	W	Y	Δ	32	J	C	T	33	T	H	A	W	Y	Δ	33	J	C	T	34	T	H	A	W	Y	Δ	34	J	C	T	35	T	H	A	W	Y	Δ	35	J	C	T	36	T	H	A	W	Y	Δ	36	J	C	T	37	T	H	A	W	Y	Δ	37	J	C	T	38	T	H	A	W	Y	Δ	38	J	C	T	39	T	H	A	W	Y	Δ	39	J	C	T	40	T	H	A	W	Y	Δ	40	J	C	T	41	T	H	A	W	Y	Δ	41	J	C	T	42	T	H	A	W	Y	Δ	42	J	C	T	43	T	H	A	W	Y	Δ	43	J	C	T	44	T	H	A	W	Y	Δ	44	J	C	T	45	T	H	A	W	Y	Δ	45	J	C	T	46	T	H	A	W	Y	Δ	46	J	C	T	47	T	H	A	W	Y	Δ	47	J	C	T	48	T	H	A	W	Y	Δ	48	J	C	T	49	T	H	A	W	Y	Δ	49	J	C	T	50	T	H	A	W	Y	Δ	50	J	C	T	51	T	H	A	W	Y	Δ	51	J	C	T	52	T	H	A	W	Y	Δ	52	J	C	T	53	T	H	A	W	Y	Δ	53	J	C	T	54	T	H	A	W	Y	Δ	54	J	C	T	55	T	H	A	W	Y	Δ	55	J	C	T	56	T	H	A	W	Y	Δ	56	J	C	T	57	T	H	A	W	Y	Δ	57	J	C	T	58	T	H	A	W	Y	Δ	58	J	C	T	59	T	H	A	W	Y	Δ	59	J	C	T	60	T	H	A	W	Y	Δ	60	J	C	T	61	T	H	A	W	Y	Δ	61	J	C	T	62	T	H	A	W	Y	Δ	62	J	C	T	63	T	H	A	W	Y	Δ	63	J	C	T	64	T	H	A	W	Y	Δ	64	J	C	T	65	T	H	A	W	Y	Δ	65	J	C	T	66	T	H	A	W	Y	Δ	66	J	C	T	67	T	H	A	W	Y	Δ	67	J	C	T	68	T	H	A	W	Y	Δ	68	J	C	T	69	T	H	A	W	Y	Δ	69	J	C	T	70	T	H	A	W	Y	Δ	70	J	C	T	71	T	H	A	W	Y	Δ	71	J	C	T	72	T	H	A	W	Y	Δ	72	J	C	T	73	T	H	A	W	Y	Δ	73	J	C	T	74	T	H	A	W	Y	Δ	74	J	C	T	75	T	H	A	W	Y	Δ	75	J	C	T	76	T	H	A	W	Y	Δ	76	J	C	T	77	T	H	A	W	Y	Δ	77	J	C	T	78	T	H	A	W	Y	Δ	78	J	C	T	79	T	H	A	W	Y	Δ	79	J	C	T	80	T	H	A	W	Y	Δ	80	J	C	T	81	T	H	A	W	Y	Δ	81	J	C	T	82	T	H	A	W	Y	Δ	82	J	C	T	83	T	H	A	W	Y	Δ	83	J	C	T	84	T	H	A	W	Y	Δ	84	J	C	T	85	T	H	A	W	Y	Δ	85	J	C	T	86	T	H	A	W	Y	Δ	86	J	C	T	87	T	H	A	W	Y	Δ	87	J	C	T	88	T	H	A	W	Y	Δ	88	J	C	T	89	T	H	A	W	Y	Δ	89	J	C	T	90	T	H	A	W	Y	Δ	90	J	C	T	91	T	H	A	W	Y	Δ	91	J	C	T	92	T	H	A	W	Y	Δ	92	J	C	T	93	T	H	A	W	Y	Δ	93	J	C	T	94	T	H	A	W	Y	Δ	94	J	C	T	95	T	H	A	W	Y	Δ	95	J	C	T	96	T	H	A	W	Y	Δ	96	J	C	T	97	T	H	A	W	Y	Δ	97	J	C	T	98	T	H	A	W	Y	Δ	98	J	C	T	99	T	H	A	W	Y	Δ	99	J	C	T	100	T	H	A	W	Y	Δ	100	J	C	T	101	T	H	A	W	Y	Δ	101	J	C	T	102	T	H	A	W	Y	Δ	102	J	C	T	103	T	H	A	W	Y	Δ	103	J	C	T	104	T	H	A	W	Y	Δ	104	J	C	T	105	T	H	A	W	Y	Δ	105	J	C	T	106	T	H	A	W	Y	Δ	106	J	C	T	107	T	H	A	W	Y	Δ	107	J	C	T	108	T	H	A	W	Y	Δ	108	J	C	T	109	T	H	A	W	Y	Δ	109	J	C	T	110	T	H	A	W	Y	Δ	110	J	C	T	111	T	H	A	W	Y	Δ	111	J	C	T	112	T	H	A	W	Y	Δ	112	J	C	T	113	T	H	A	W	Y	Δ	113	J	C	T	114	T	H	A	W	Y	Δ	114	J	C	T	115	T	H	A	W	Y	Δ	115	J	C	T	116	T	H	A	W	Y	Δ	116	J	C	T	117	T	H	A	W	Y	Δ	117	J	C	T	118	T	H	A	W	Y	Δ	118	J	C	T	119	T	H	A	W	Y	Δ	119	J	C	T	120	T	H	A	W	Y	Δ	120	J	C	T	121	T	H	A	W	Y	Δ	121	J	C	T	122	T	H	A	W	Y	Δ	122	J	C	T	123	T	H	A	W	Y	Δ	123	J	C	T	124	T	H	A	W	Y	Δ	124	J	C	T	125	T	H	A	W	Y	Δ	125	J	C	T	126	T	H	A	W	Y	Δ	126	J	C	T	127	T	H	A	W	Y	Δ	127	J	C	T	128	T	H	A	W	Y	Δ	128	J	C	T	129	T	H	A	W	Y	Δ	129	J	C	T	130	T	H	A	W	Y	Δ	130	J	C	T	131	T	H	A	W	Y	Δ	131	J	C	T	132	T	H	A	W	Y	Δ	132	J	C	T	133	T	H	A	W	Y	Δ	133	J	C	T	134	T	H	A	W	Y	Δ	134	J	C	T	135	T	H	A	W	Y	Δ	135	J	C	T	136	T	H	A	W	Y	Δ	136	J	C	T	137	T	H	A	W	Y	Δ	137	J	C	T	138	T	H	A	W	Y	Δ	138	J	C	T	139	T	H	A	W	Y	Δ	139	J	C	T	140	T	H	A	W	Y	Δ	140	J	C	T	141	T	H	A	W	Y	Δ	141	J	C	T	142	T	H	A	W	Y	Δ	142	J	C	T	143	T	H	A	W	Y	Δ	143	J	C	T	144	T	H	A	W	Y	Δ	144	J	C	T	145	T	H	A	W	Y	Δ	145	J	C	T	146	T	H	A	W	Y	Δ	146	J	C	T	147	T	H	A	W	Y	Δ	147	J	C	T	148	T	H	A	W	Y	Δ	148	J	C	T	149	T	H	A	W	Y	Δ	149	J	C	T	150	T	H	A	W	Y	Δ	150	J	C	T	151	T	H	A	W	Y	Δ	151	J	C	T	152	T	H	A	W	Y	Δ	152	J	C	T	153	T	H	A	W	Y	Δ	153	J	C	T	154	T	H	A	W	Y	Δ	154	J	C	T	155	T	H	A	W	Y	Δ	155	J	C	T	156	T	H	A	W	Y	Δ	156	J	C	T	157	T	H	A	W	Y	Δ	157	J	C	T	158	T	H	A	W	Y	Δ	158	J	C	T	159	T	H	A	W	Y	Δ	159	J	C	T	160	T	H	A	W	Y	Δ	160	J	C	T	161	T	H	A	W	Y	Δ	161	J	C	T	162	T	H	A	W	Y	Δ	162	J	C	T	163	T	H	A	W	Y	Δ	163	J	C	T	164	T	H	A	W	Y	Δ	164	J	C	T	165	T	H	A	W	Y	Δ	165	J	C	T	166	T	H	A	W	Y	Δ	166	J	C	T	167	T	H	A	W	Y	Δ	167	J	C	T	168	T	H	A	W	Y	Δ	168	J	C	T	169	T	H	A	W	Y	Δ	169	J	C	T	170	T	H	A	W	Y	Δ	170	J	C	T	171	T	H	A	W	Y	Δ	171	J	C	T	172	T	H	A	W	Y	Δ	172	J	C	T	173	T	H	A	W	Y	Δ	173	J	C	T	174	T	H	A	W	Y	Δ	174	J	C	T	175	T	H	A	W	Y	Δ	175	J	C	T	176	T	H	A	W	Y	Δ	176	J	C	T	177	T	H	A	W	Y	Δ	177	J	C	T	178	T	H	A	W	Y	Δ	178	J	C	T	179	T	H	A	W	Y	Δ	179	J	C	T	180	T	H	A	W	Y	Δ	180	J	C	T	181	T	H	A	W	Y	Δ	181	J	C	T	182	T	H	A	W	Y	Δ	182	J	C	T	183	T	H	A	W	Y	Δ	183	J	C	T	184	T	H	A	W	Y	Δ	184	J	C	T	185	T	H	A	W	Y	Δ	185	J	C	T	186	T	H	A	W	Y	Δ	186	J	C	T	187	T	H	A	W	Y	Δ	187	J	C	T	188	T	H	A	W	Y	Δ	188	J	C	T	189	T	H	A	W	Y	Δ

[illegible]

THE ROUTE



WORD	Ø												1												2												3														
CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3						
TRACK96	D	P	T	R	:	:	:	:	:	:	Δ	I	J	C	T	2	N	D	A	W	Y	Δ	2	J	-																										
TRACK93	-	J	C	T	Δ	I	S	T	A	W	Y	Δ	I	J	C	T	Δ	2	N	D	A	W	Y	Δ	2	J	C	T	Δ	4	T	H	A	W	Y	Δ	3	J	C	T	Δ	4	T	H	A						
TRACK97													I	S	T	W	O	R	D	-	R	M	K	S	2	N	D	W	O	R	D	-	R	M	K	S	-	-	-	THIS FIX TBL.											
	D	P	T	R	Δ	F	L	T	I	D	N	T	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I						
FIELD																																																			

WORD	Ø												1												2												3												
CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3				
DATA IN FORMAT						Δ	I	S	T	A	W	Y	Δ	I	J	C	T	Δ	2	N	D	A	W	Y	Δ	2	J	C	T	Δ	3	R	D	A	W	Y	Δ	3	J	C	T	Δ	4	T	H	A			
HSP BUFFER	*	*	*	*																																													
POSITIONS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45				
FIELD	V				U				T				S				R																																

WORD	Ø												1												2												3											
CHARACTER	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3	2	1	S	11	10	9	8	7	6	5	4	3			
DATA IN FORMAT																																																
HSP BUFFER	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
POSITIONS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45			
FIELD	V				U				T				S				R																															

CODE

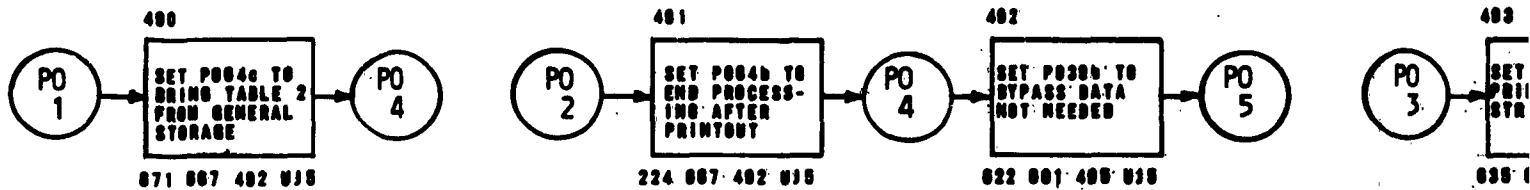
HSP FUNCTION

NOTE: REFERENCE MUST BE MADE TO THE FLOW C WHICH OR HOW MUCH OF THE DATA SHOWN ADDED TO THE FORMAT FOR A PARTICULAR

? _____ BLACK COLOR PRINT
 j _____ RED COLOR PRINT
 " _____ UPPER CASE
 B _____ LOWER CASE
 Δ _____ SPACE
 i _____ NON-PRINT PAD CHARACTER

* - : THESE BUFFER POSITIONS DO NOT CONTAIN DATA AND ARE NOT WIRED ON THE HSP PLUGBOARD. THESE POSITIONS MAY CONTAIN IS, IRRELEVANT AND IS NOT SHOWN ON THE I

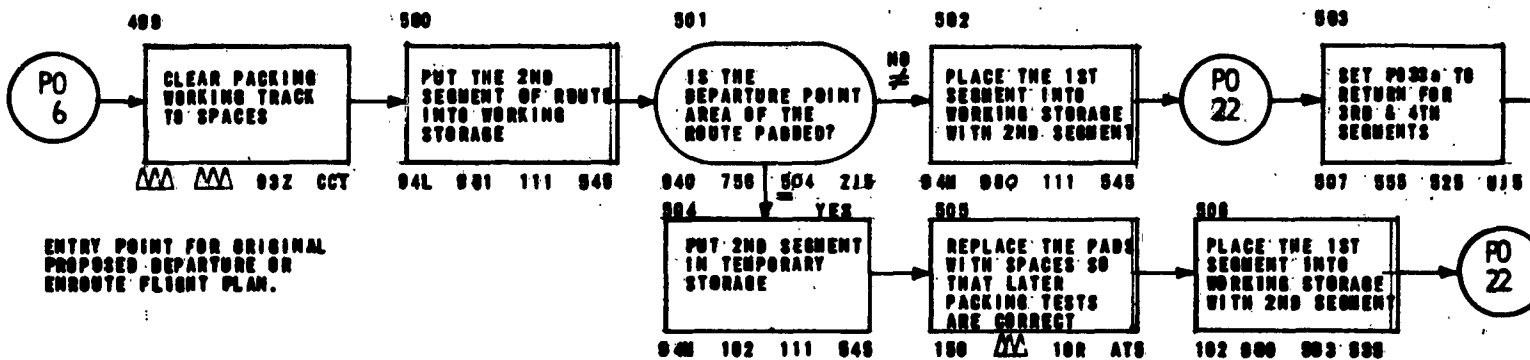
[illegible]



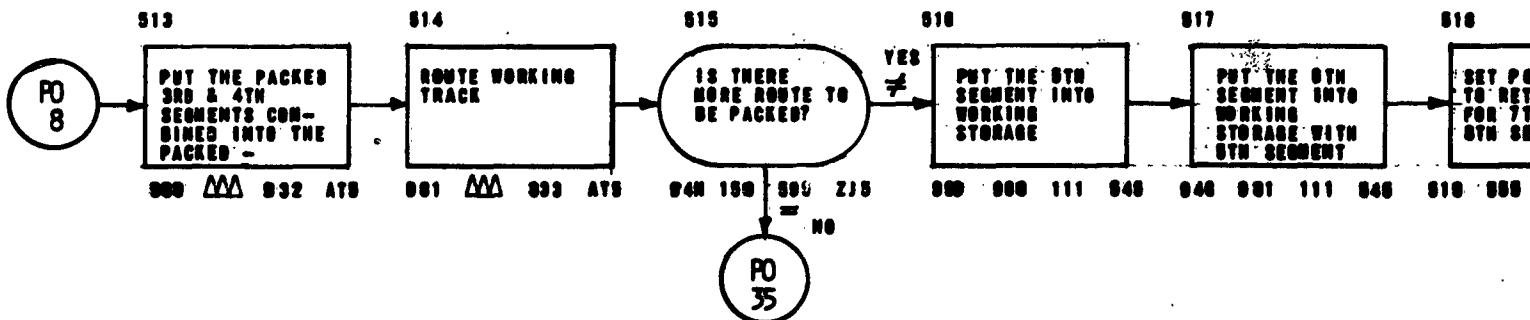
ENTRY POINT FOR THE RIDER STRIP FOR AN ENROUTE FLIGHT PLAN.

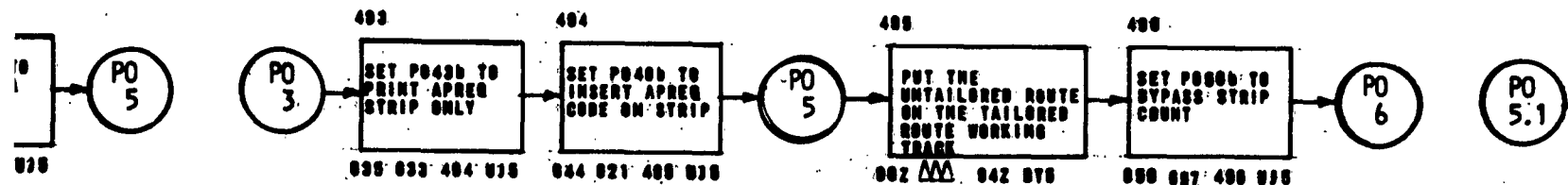
ENTRY POINT FOR THE RIDER STRIP FOR A PROPOSED DEPARTURE FLIGHT PLAN.

ENTRY POINT FROM



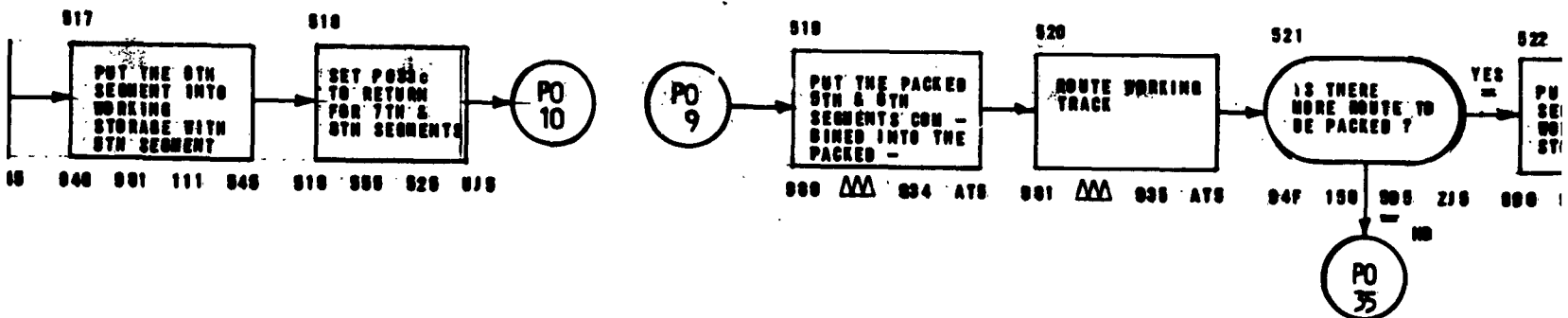
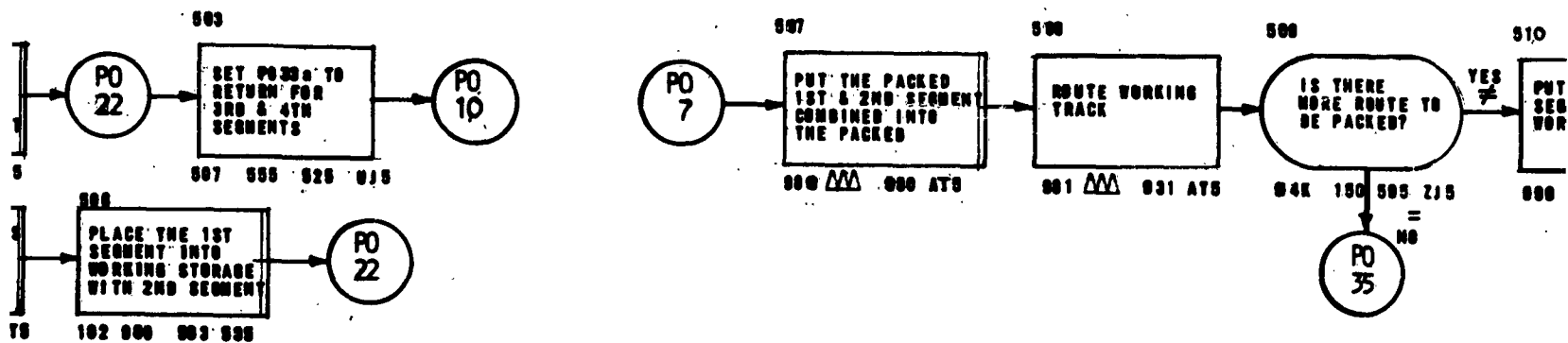
ENTRY POINT FOR ORIGINAL PROPOSED DEPARTURE OR ENROUTE FLIGHT PLAN.

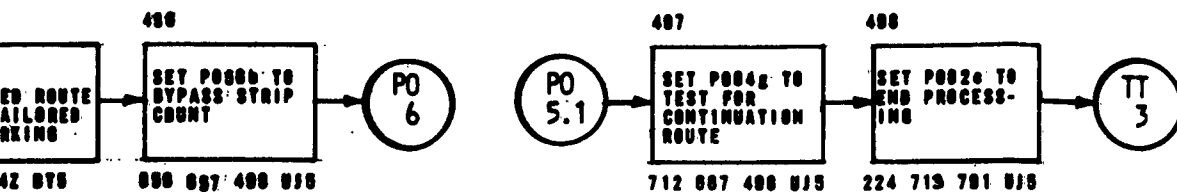




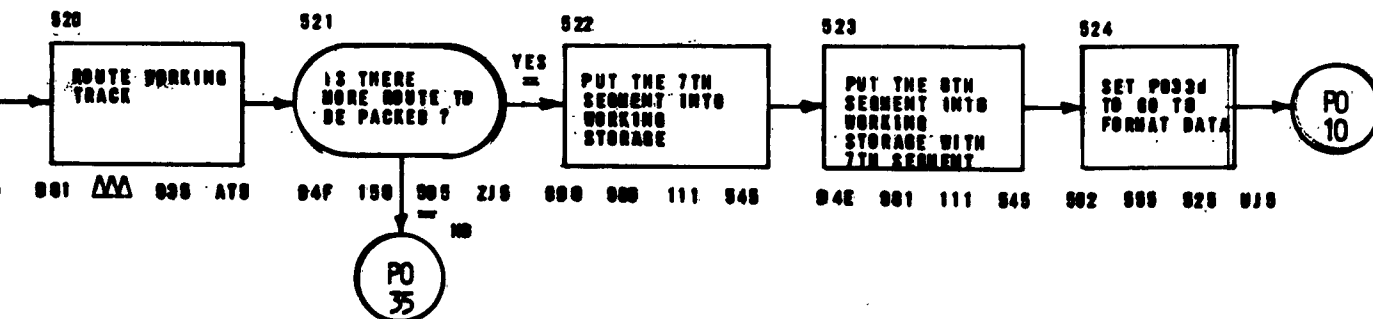
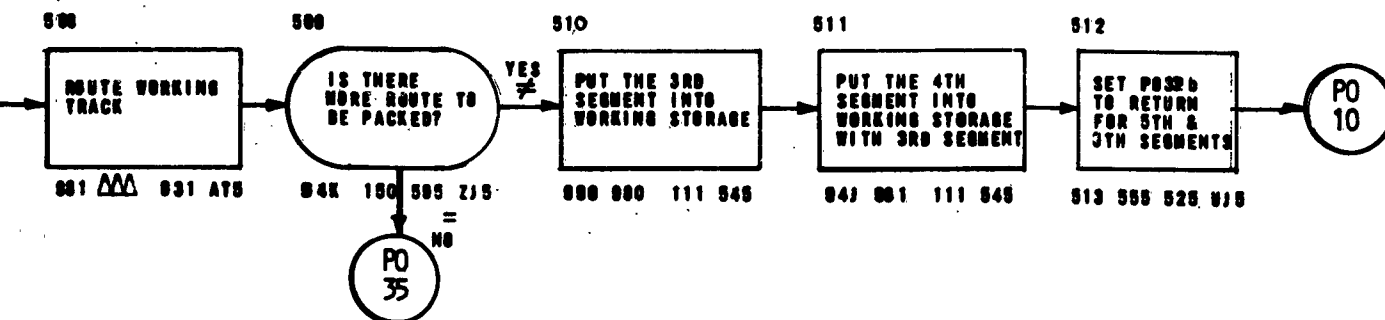
ENTRY POINT FOR A PROPOSED DEPARTURE FROM ANOTHER CENTER.

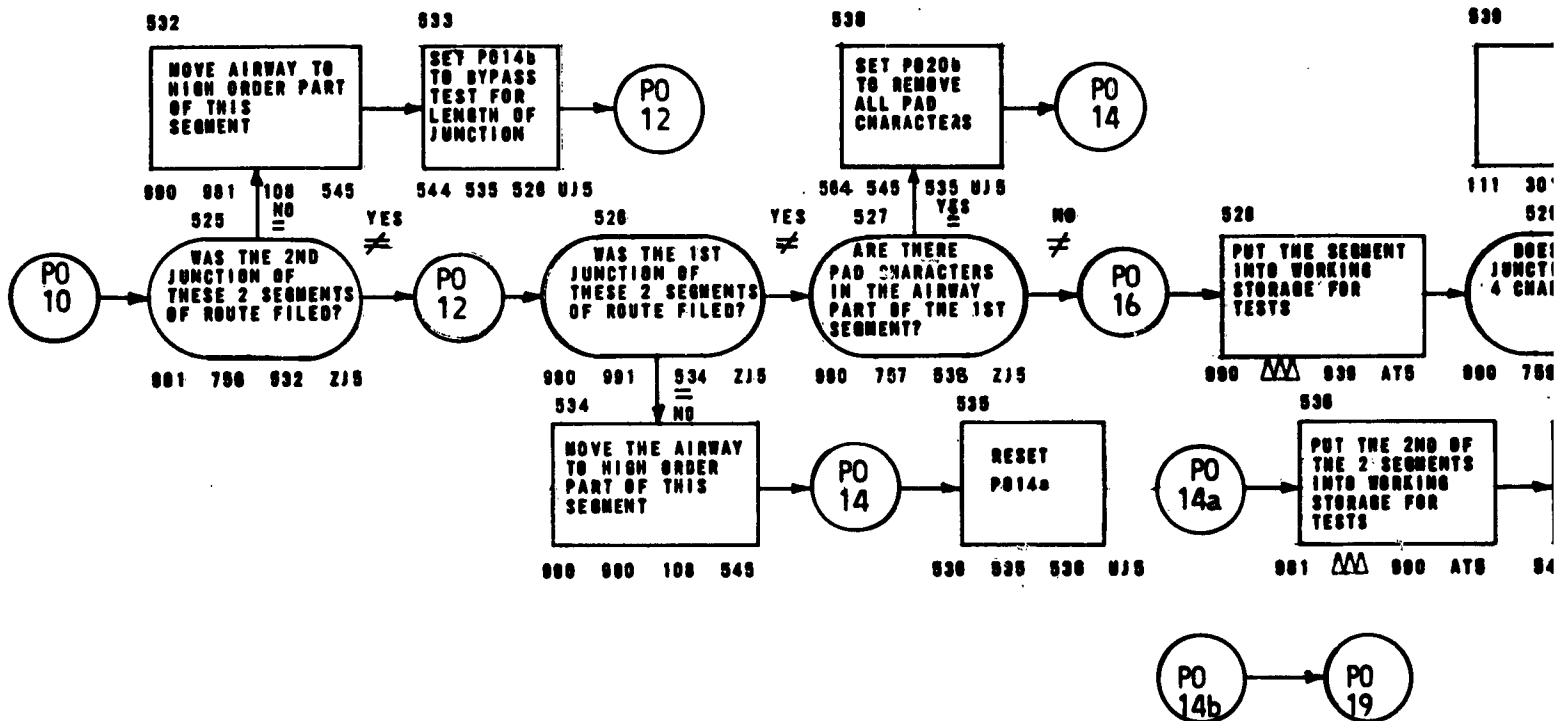
ENTRY STRIP FROM



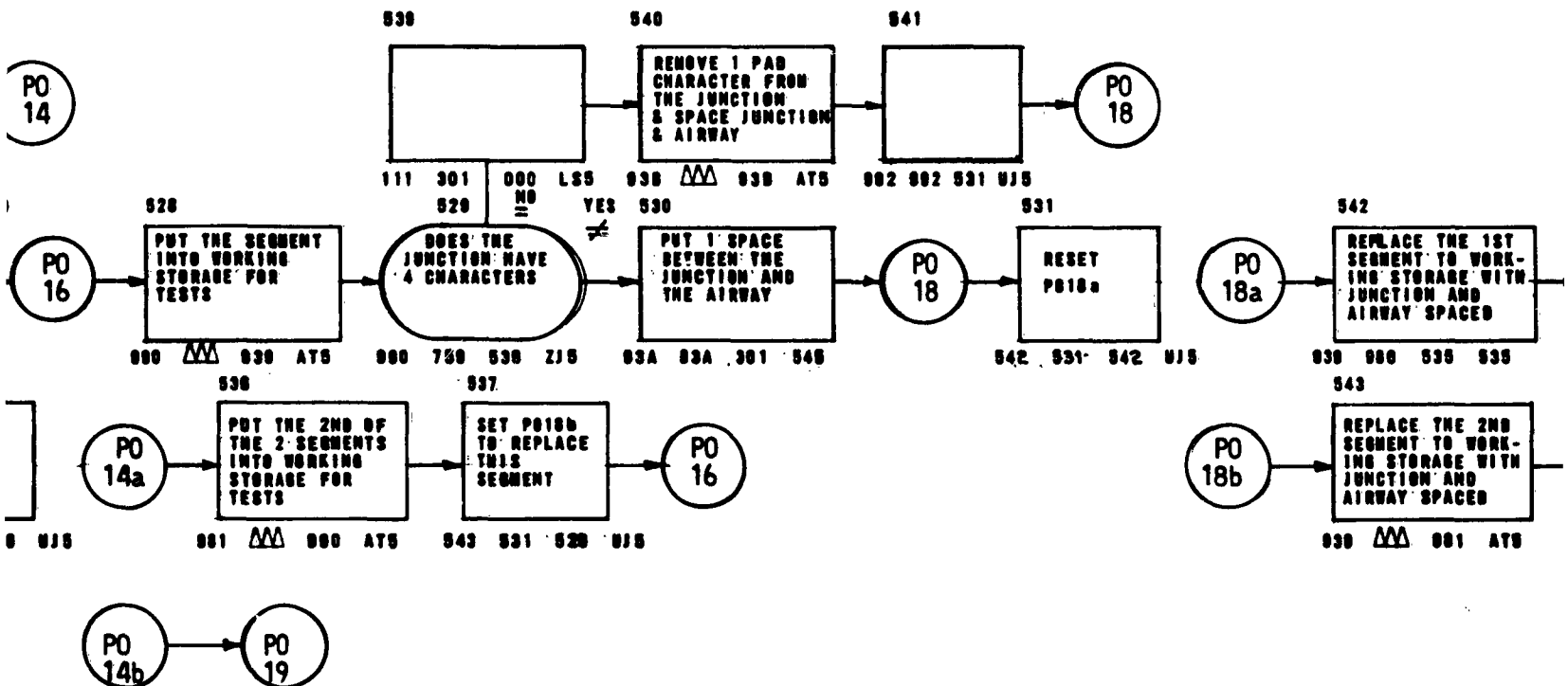


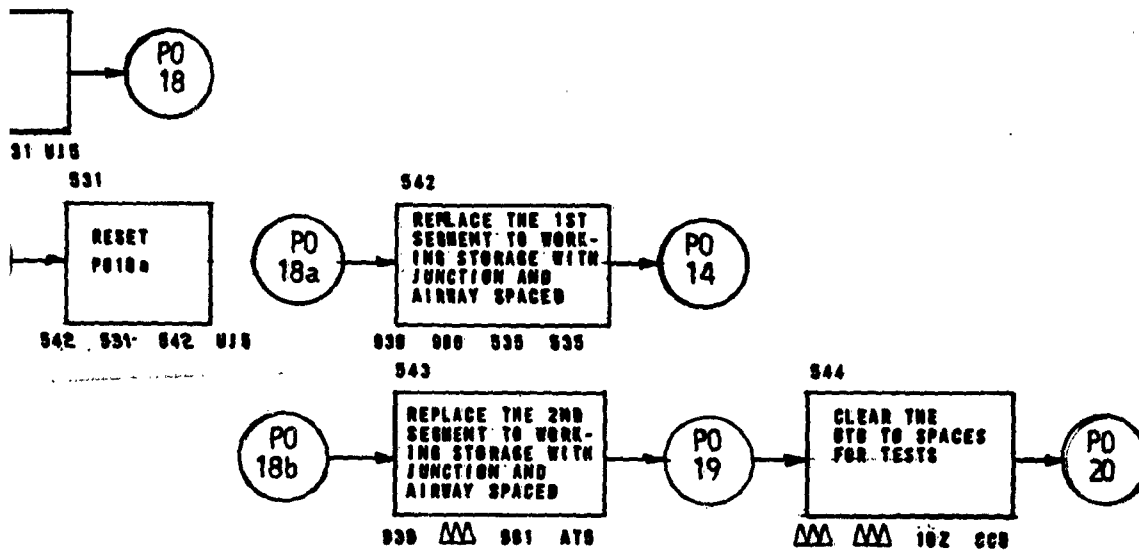
ENTRY POINT FOR A DUPLICATE
STRIP REQUESTED BY CONTROLLER
FROM 'READOUT' ROUTINE.



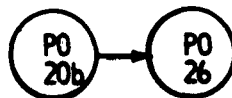
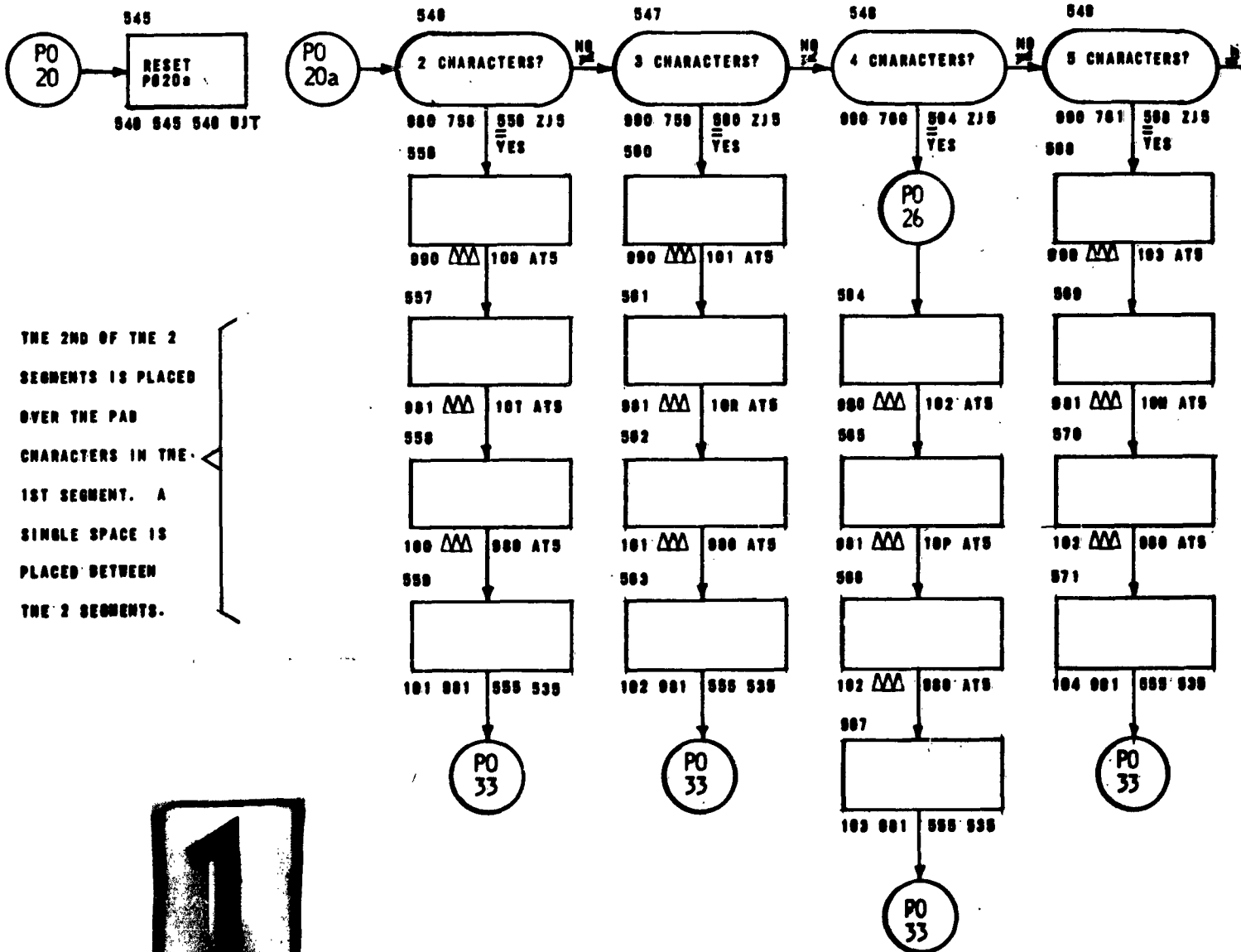


1





THESE TESTS ARE TO DETERMINE THE NUMBER OF PRINT



THE AIRWAY PORTION
OF THE 1ST SEGMENT
OF THE FLIGHT PLAN
IS ALL PAD CHARACTERS.

The flowchart illustrates a process for handling character counts, starting from 4 characters and proceeding up to 10 characters. Each step involves a decision point (e.g., "4 CHARACTERS?", "5 CHARACTERS?") and a corresponding data flow (e.g., "000 700", "004 ZJS"). If the decision is "YES", the process moves to a specific data flow and then to a "PO 26" or "PO 33" output. If the decision is "NO", the process moves to the next step (e.g., "5 CHARACTERS?", "6 CHARACTERS?").

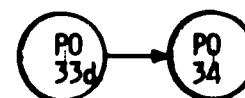
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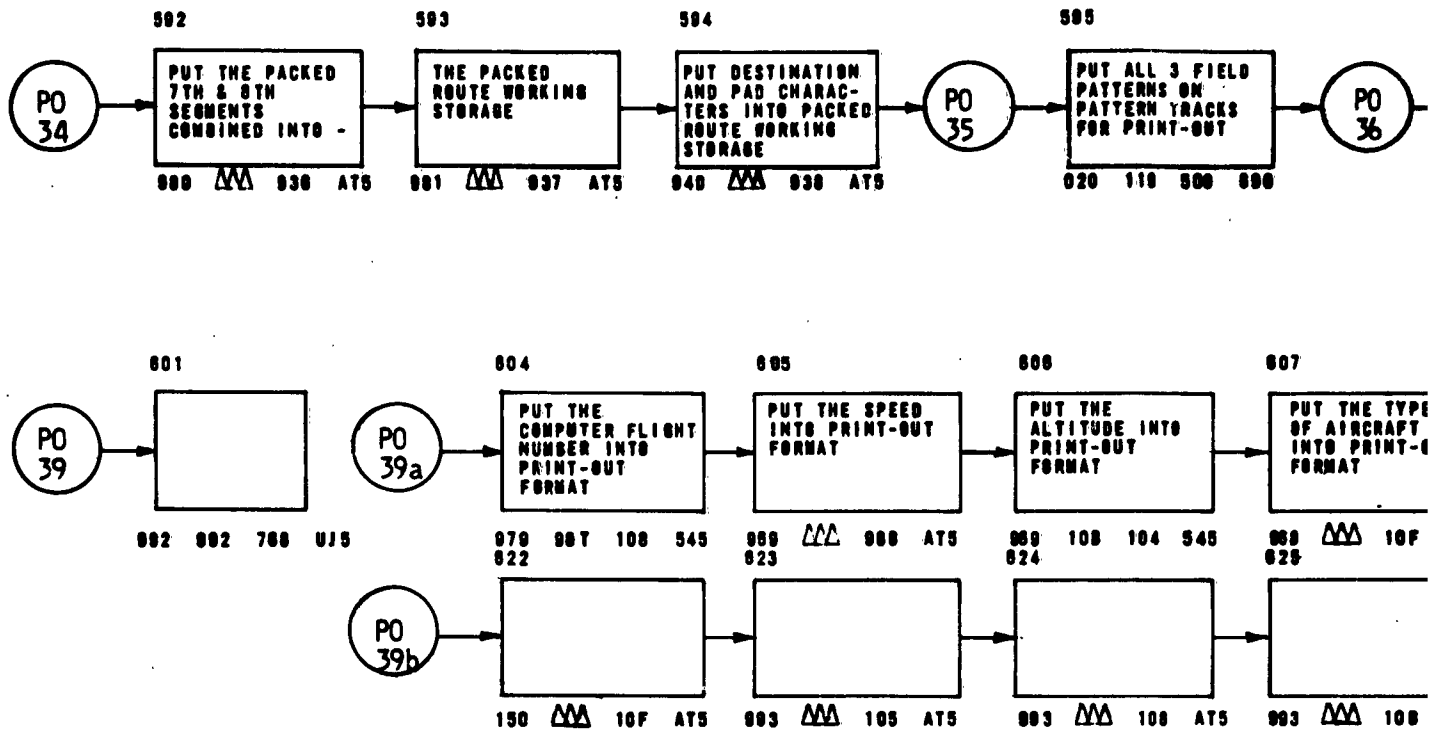
graph TD
    S4[4 CHARACTERS?] -- NO --> S5[5 CHARACTERS?]
    S4 -- YES --> P026((PO 26))
    P026 --> B4[ ]
    B4 --> B5[ ]
    B5 --> P033_4((PO 33))
    
    S5 -- NO --> S6[6 CHARACTERS?]
    S5 -- YES --> B6[ ]
    B6 --> B7[ ]
    B7 --> P033_5((PO 33))
    
    S6 -- NO --> S7[7 CHARACTERS?]
    S6 -- YES --> B8[ ]
    B8 --> B9[ ]
    B9 --> P033_6((PO 33))
    
    S7 -- NO --> S8[8 CHARACTERS?]
    S7 -- YES --> B10[ ]
    B10 --> B11[ ]
    B11 --> P033_7((PO 33))
    
    S8 -- NO --> S9[9 CHARACTERS?]
    S8 -- YES --> B12[ ]
    B12 --> B13[ ]
    B13 --> P033_8((PO 33))
    
    S9 -- NO --> S10[10 CHARACTERS?]
    S9 -- YES --> B14[ ]
    B14 --> B15[ ]
    B15 --> P033_9((PO 33))
    
    S10 -- NO --> S11[11 CHARACTERS?]
    S10 -- YES --> B16[ ]
    B16 --> B17[ ]
    B17 --> P033_10((PO 33))
  
```



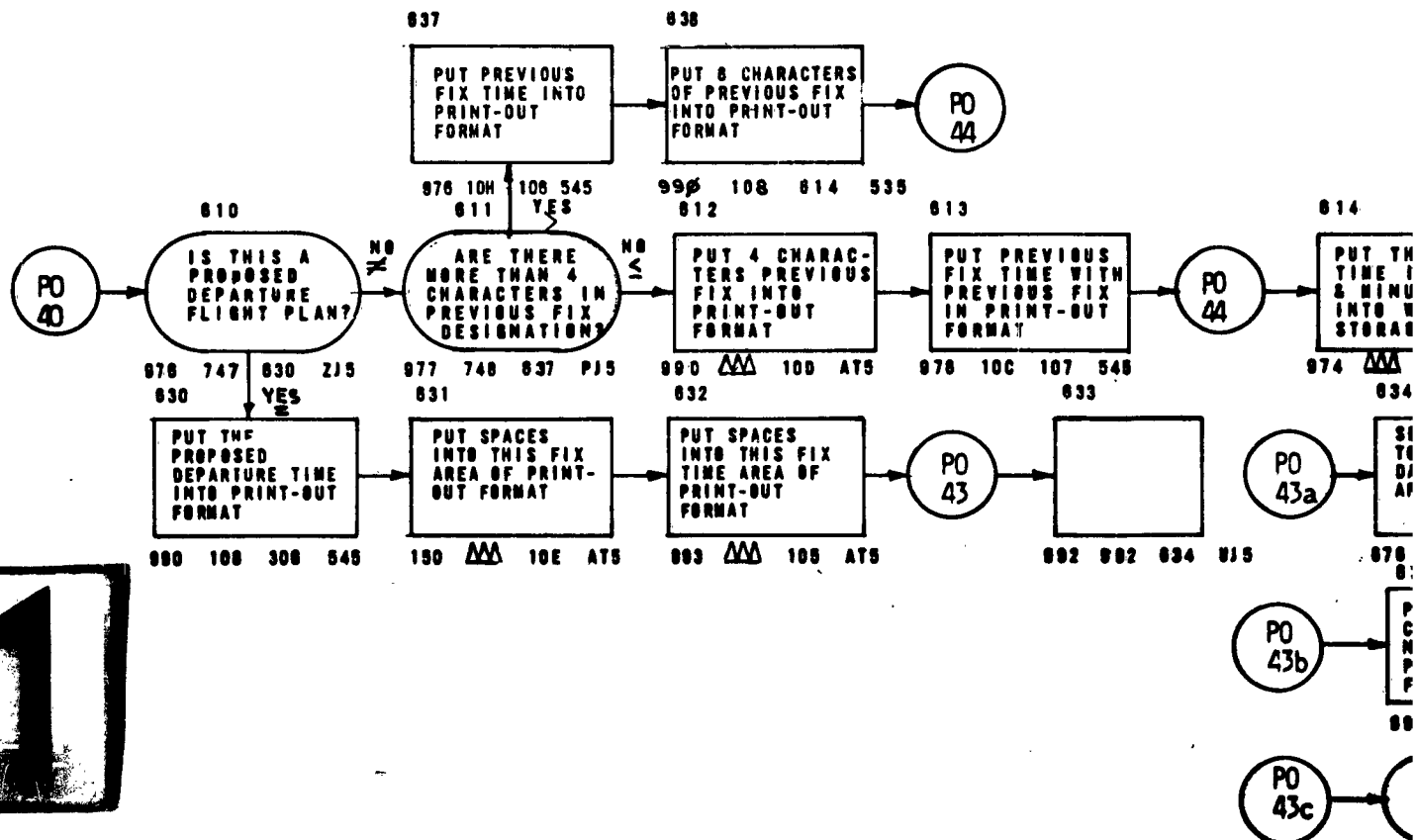
```

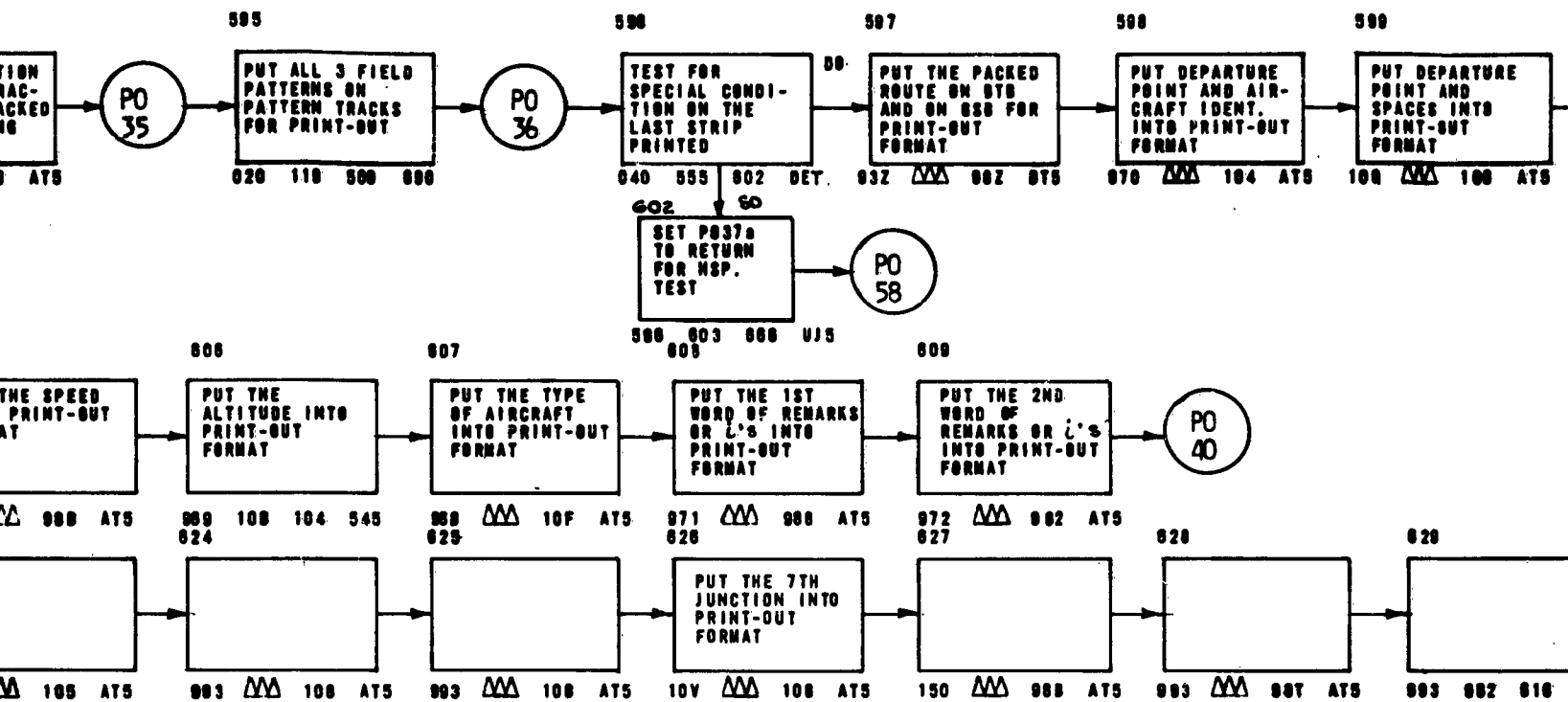
graph TD
    Start(( )) --> D7{7 CHARACTERS?}
    D7 -- YES --> B1[ ]
    B1 --> B2[106 ATB]
    B2 --> B3[10F ATB]
    B3 --> B4[800 ATB]
    B4 --> B5[001 555 535]
    B5 --> PO33_1((PO 33))
    D7 -- NO --> D8{8 CHARACTERS?}
    D8 -- YES --> B6[ ]
    B6 --> B7[107 ATB]
    B7 --> B8[801 ATB]
    B8 --> B9[107 800 ATB]
    B9 --> B10[108 001 555 535]
    B10 --> PO33_2((PO 33))
    D8 -- NO --> D9{10 CHARACTERS?}
    D9 -- YES --> B11[ ]
    B11 --> B12[108 ATB]
    B12 --> B13[801 ATB]
    B13 --> B14[108 800 ATB]
    B14 --> B15[109 001 555 535]
    B15 --> PO33_3((PO 33))
    D9 -- NO --> PO33_4((PO 33))
    PO33_4 --> End(( ))
  
```



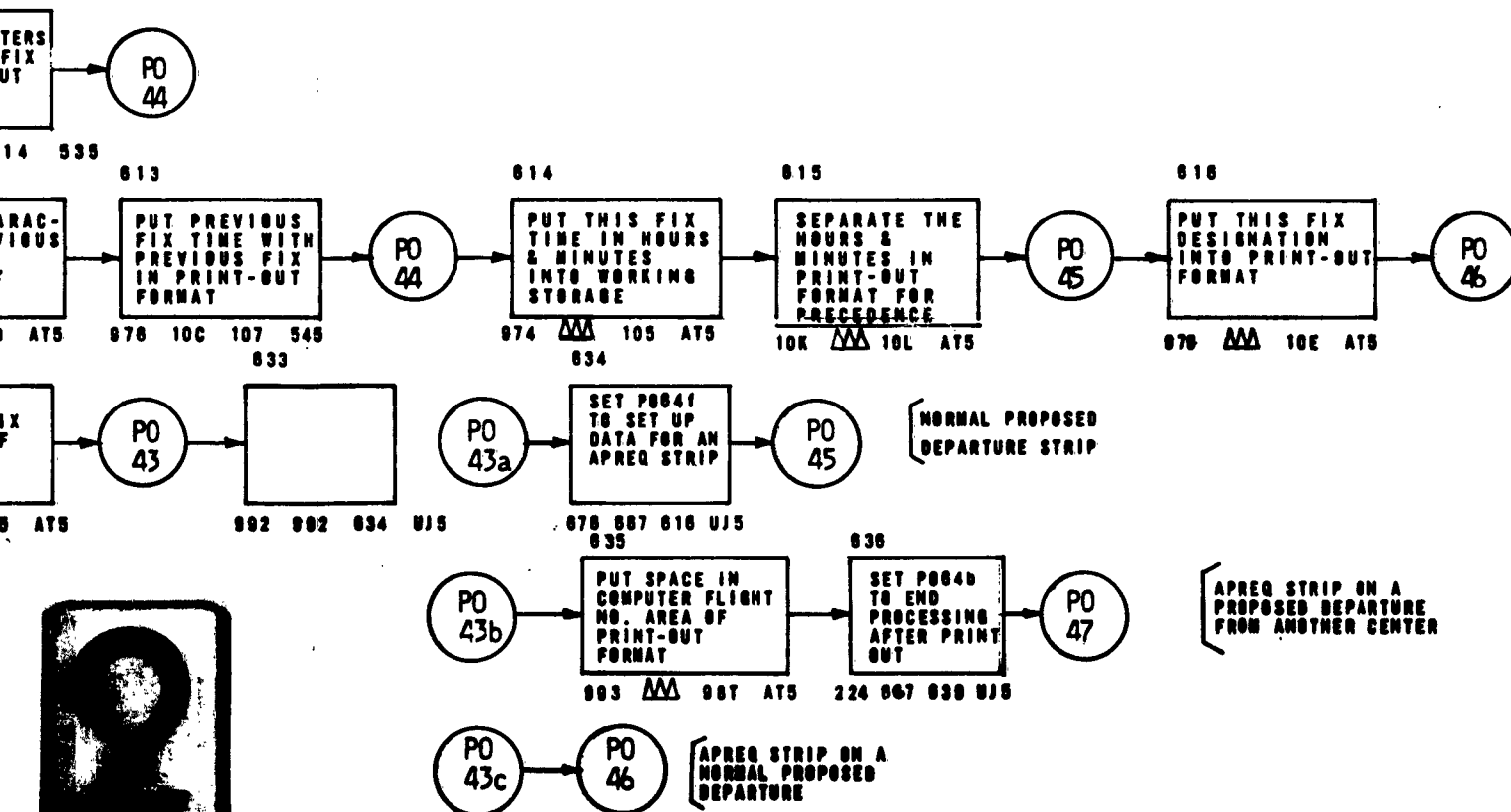


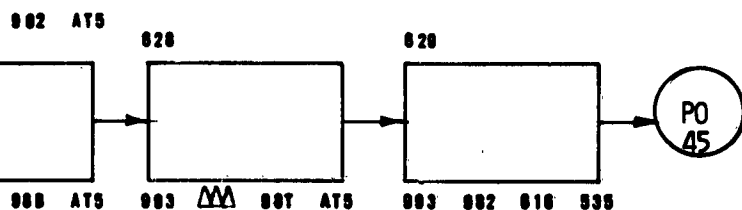
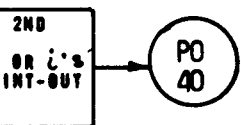
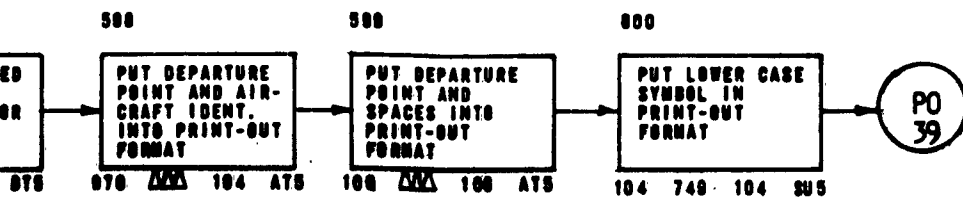
SET UP DATA FOR A RIDER STRIP. THE ABOVE STEPS



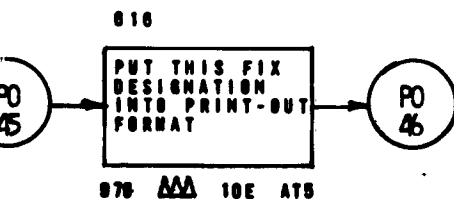


SET UP DATA FOR A RIDER STRIP. THE ABOVE STEPS PUT SPACES IN THE UNUSED AREAS OF THE PRINT-OUT FORMAT

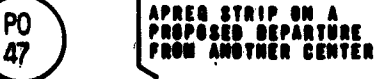


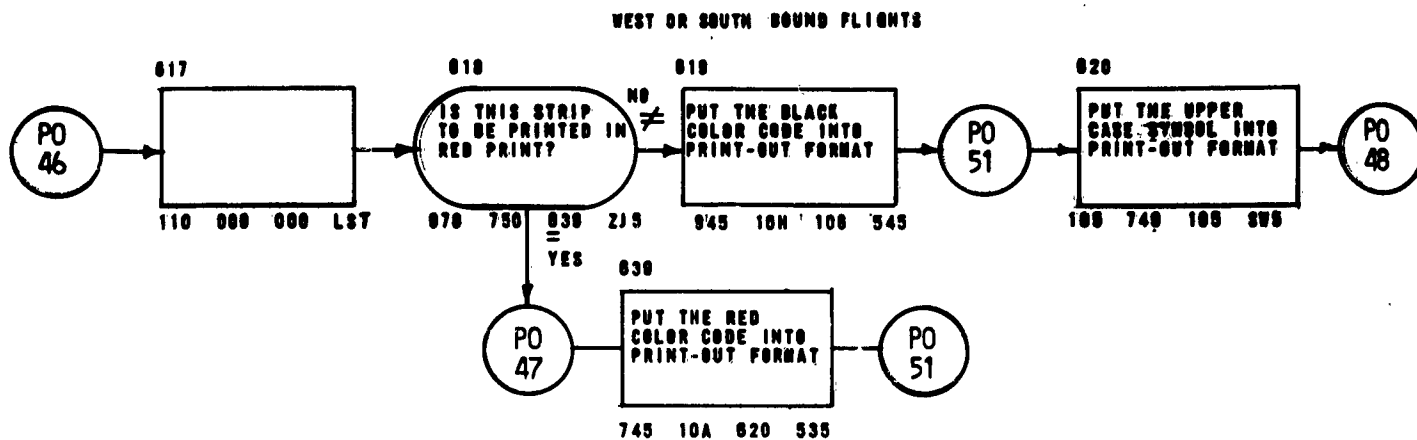


PRINT-OUT FORMAT

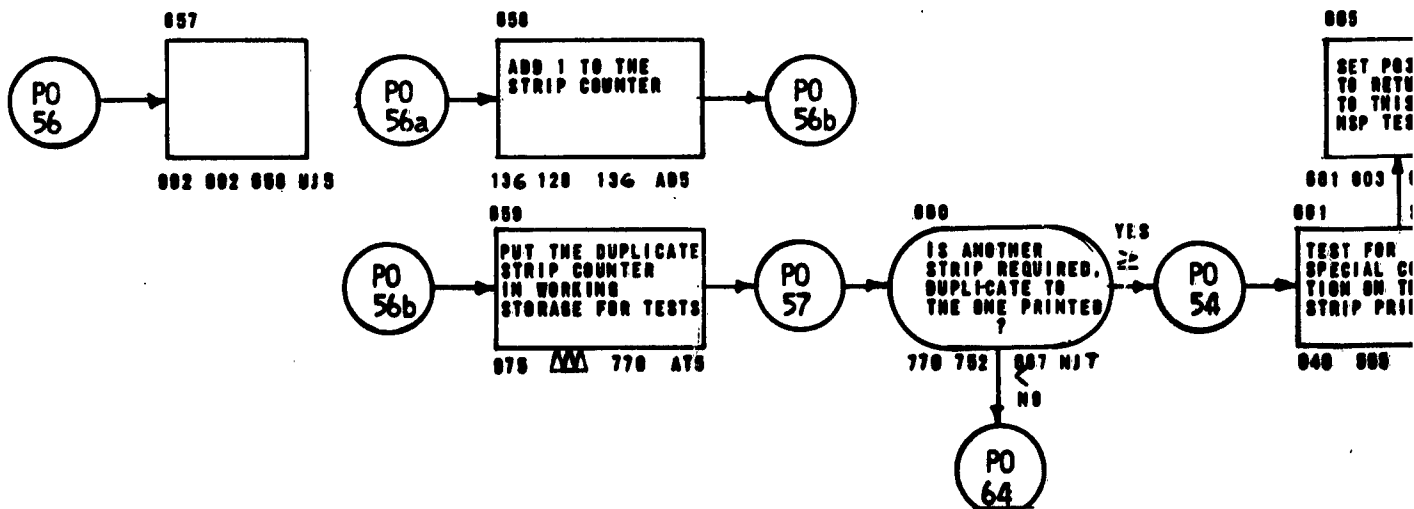
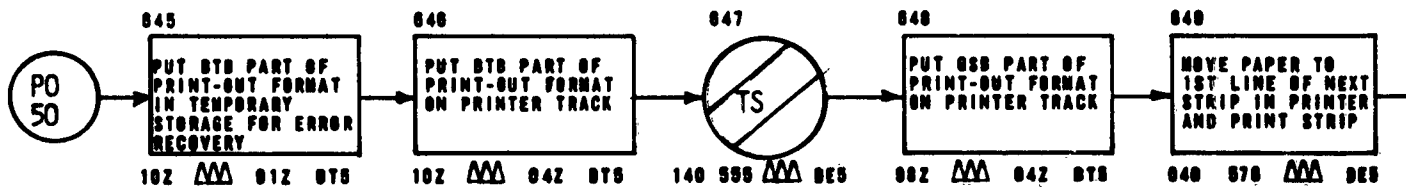


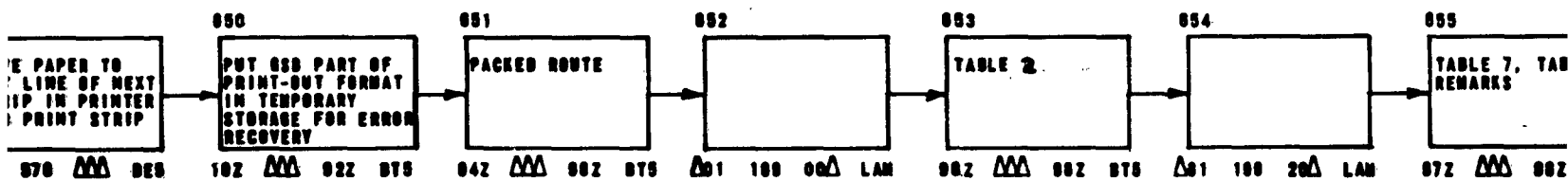
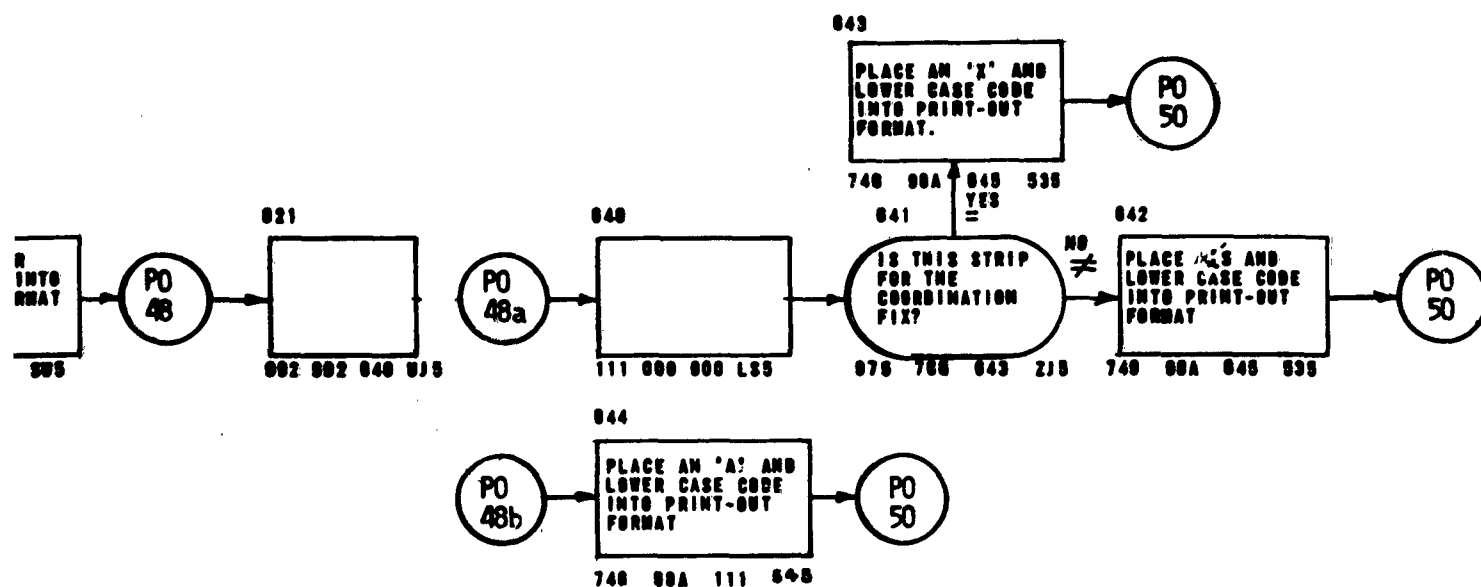
SED
RIP



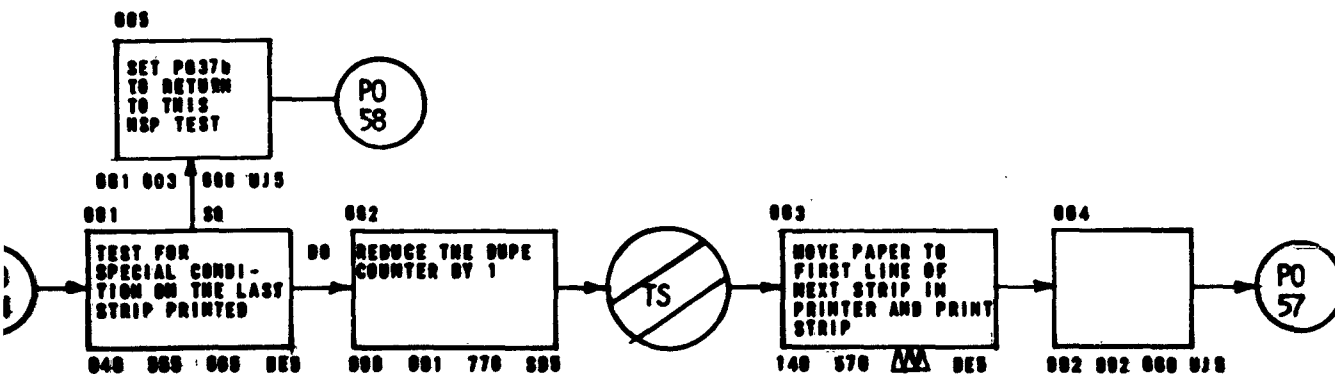


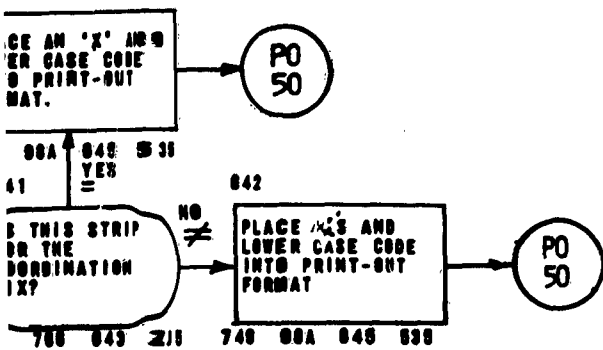
EAST OR NORTH BOUND FLIGHT OR
APREQ ON PROPOSED DEPARTURE
FROM ANOTHER CENTER.



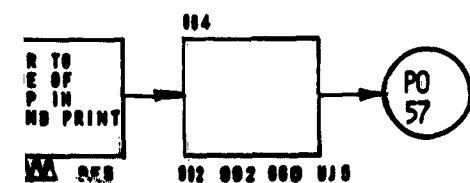
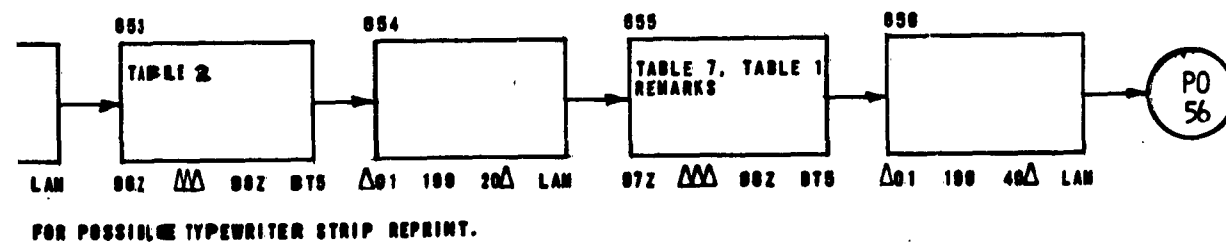


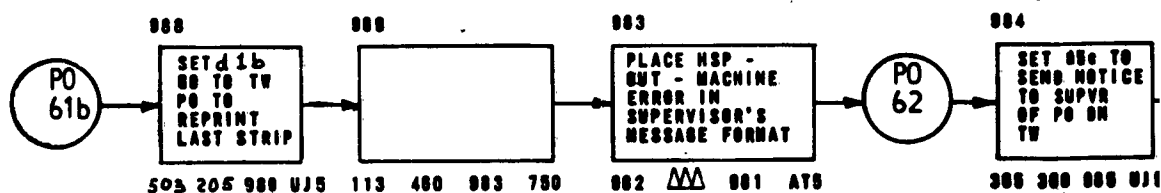
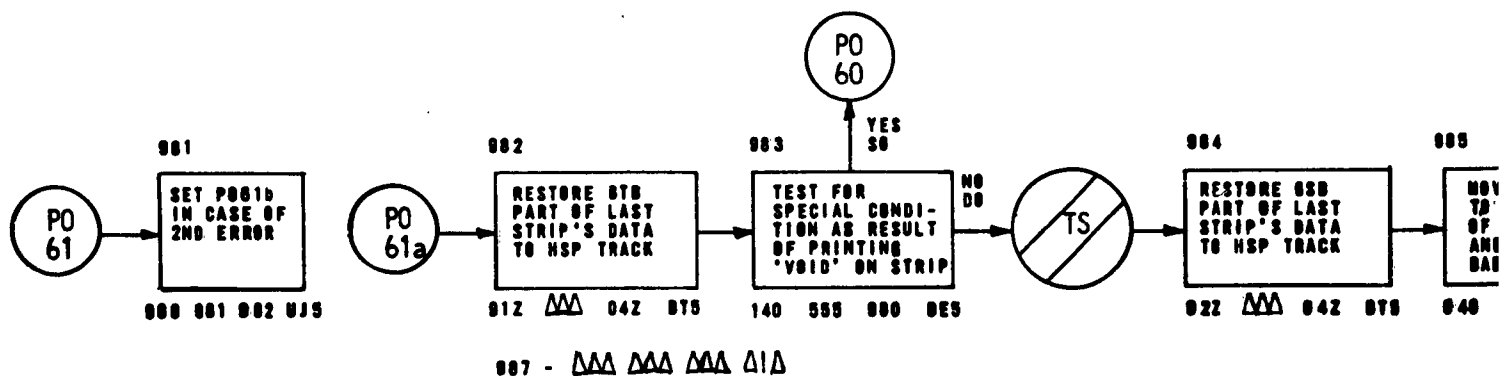
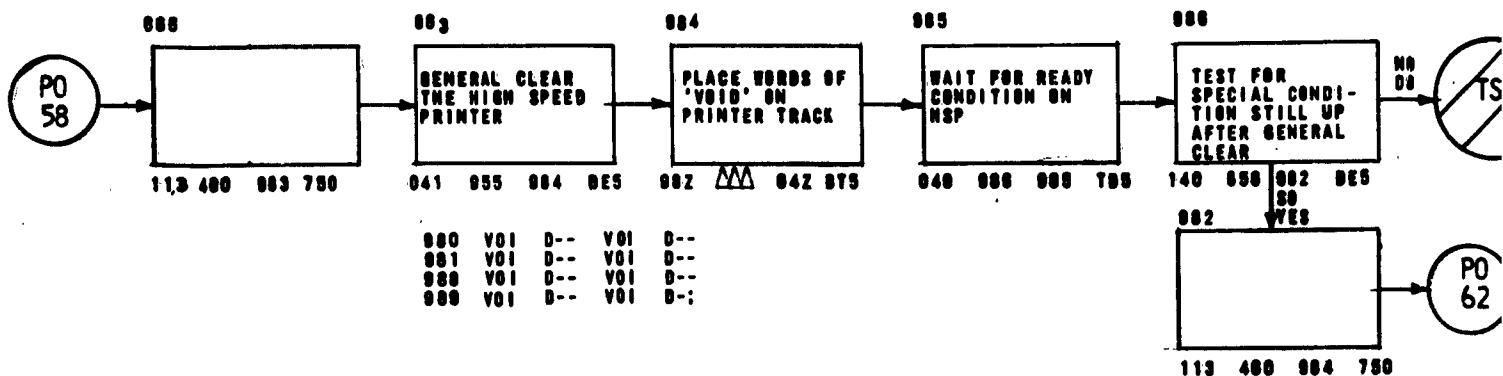
STORE THE ORIGINAL 3 TRACKS OF DATA FOR POSSIBLE TYPEWRITER STRIP REPRINT.



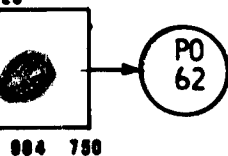
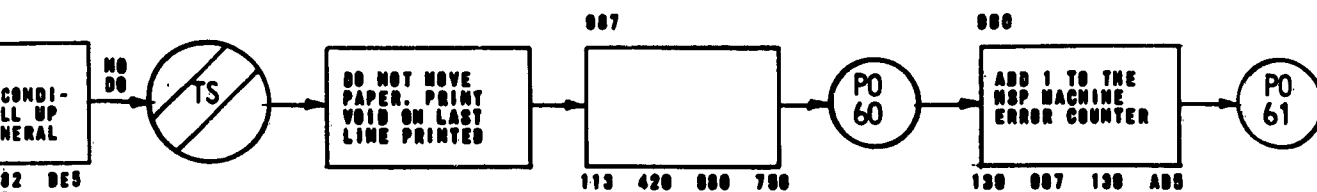


PO
50

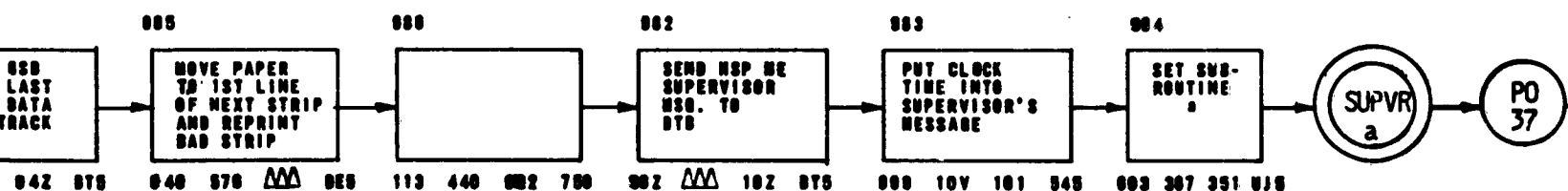




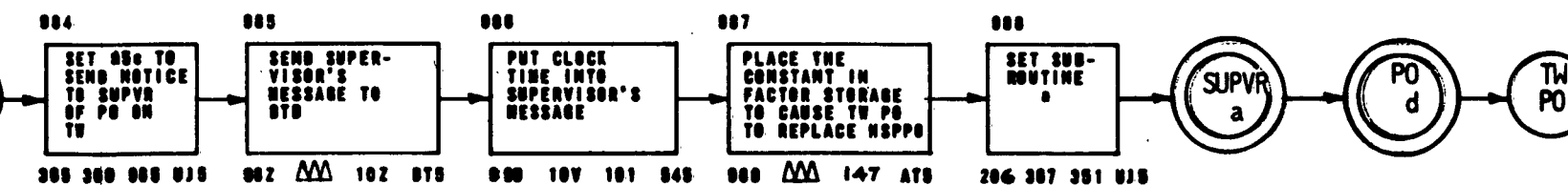
TWO CONSECUTIVE ERRORS. HSP CONSIDERED OUT OF OPERATION UNTIL ERROR CONDITION CORRECTED. LAST STRIP PRINTED MAY HAVE BAD DATA OR MAY NOT BE COMPLETE AND HAS BEEN VOIDED. LAST STRIP MUST BE REPRINTED AND FUTURE PRINT-OUT WILL TAKE PLACE ON THE FLIDAP SUPERVISOR'S TYPEWRITER.



HSP IS OUT OF PAPER OR RIBBON OR ON 'TEST'. HSP OUT OF OPERATION UNTIL CONDITION CORRECTED. LAST STRIP PRINTED IS 0000. CONTINUE FUTURE PRINT-OUT ON FLIDAP SUPERVISOR'S TYPEWRITER.

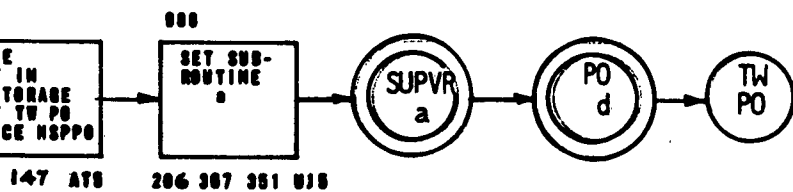
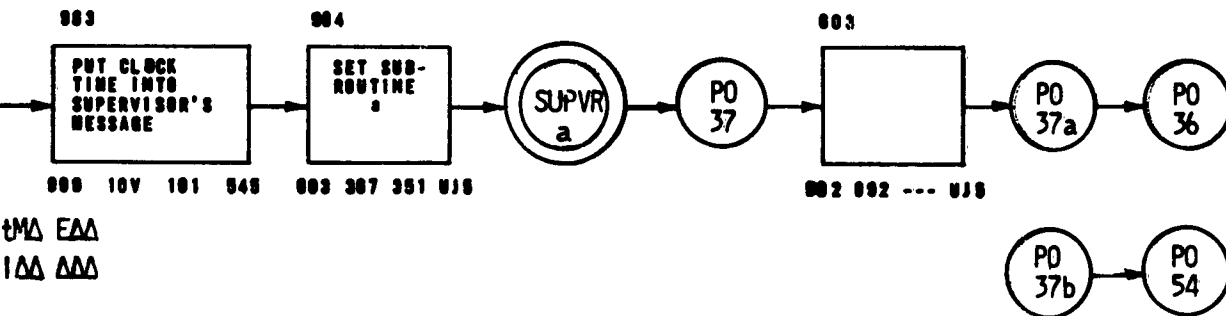
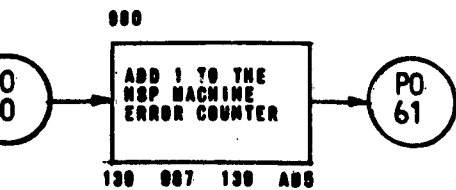


000 - $\Delta\Delta\Delta \Delta r / tMA E\Delta\Delta$
 001 - $\Delta HS Prr I\Delta\Delta \Delta\Delta\Delta$



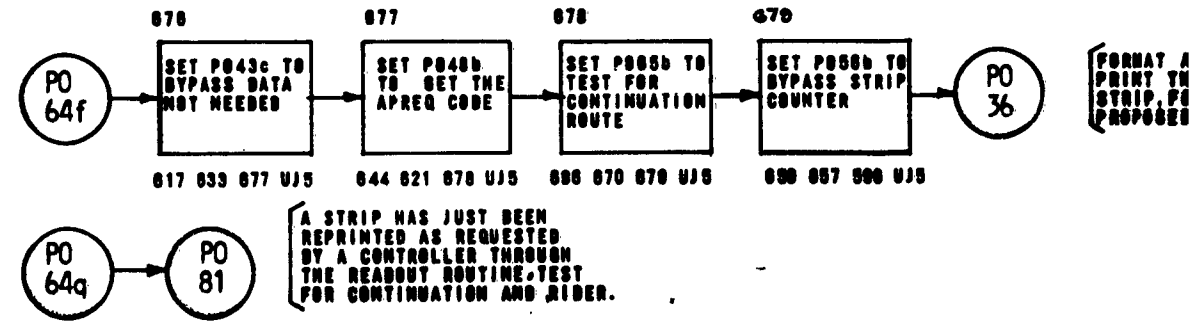
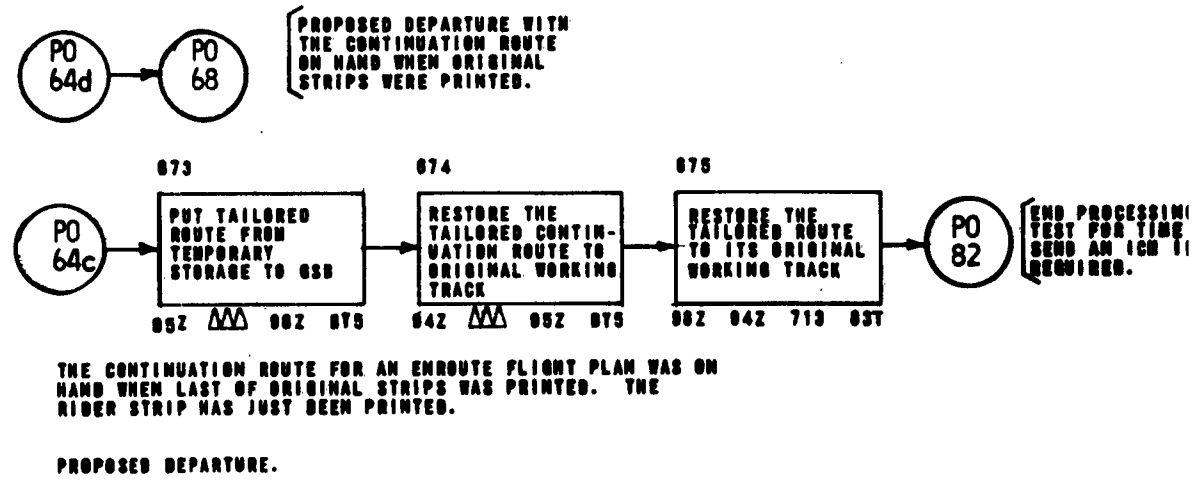
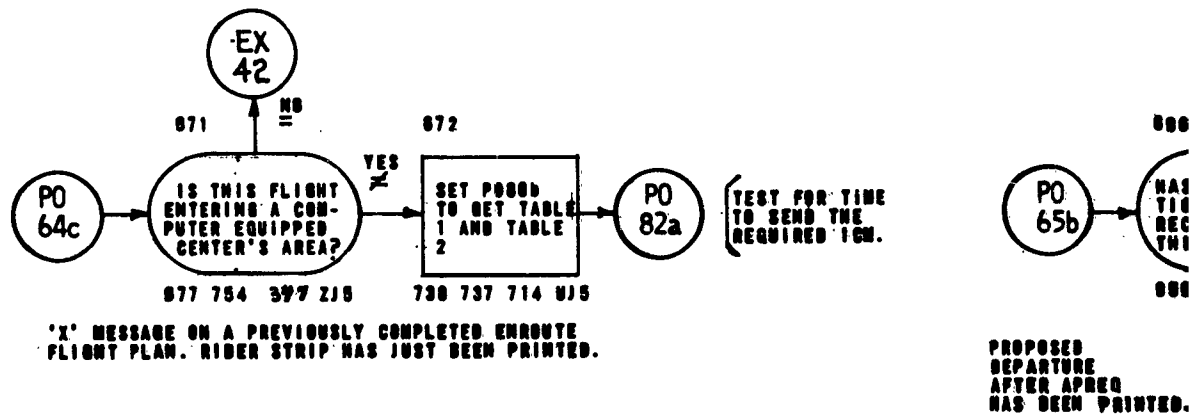
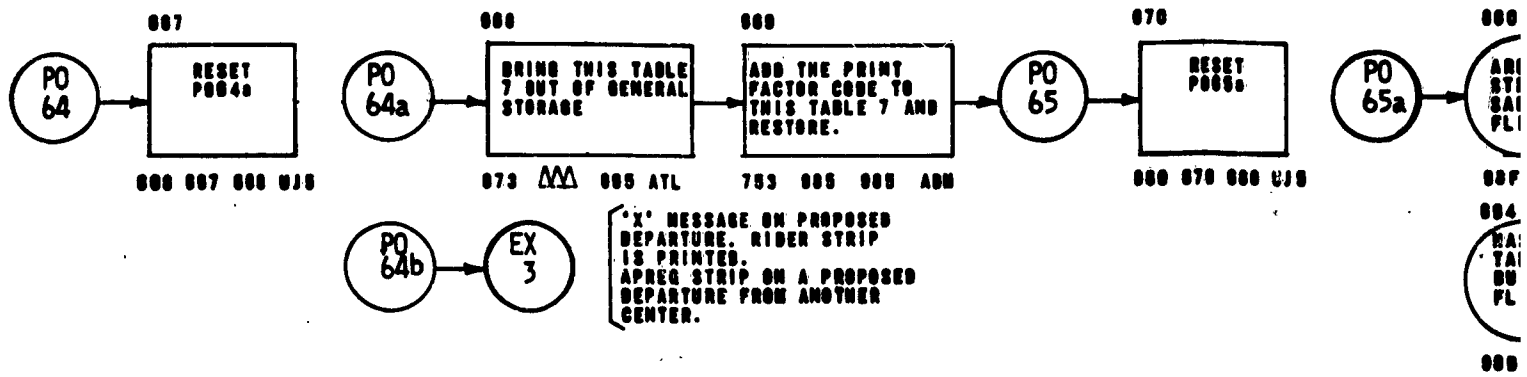
000 - $\Delta\Delta\Delta \Delta r t HSP \Delta Du$
 001 - $T\Delta- \Delta PA PER rrl$
 002 - $T\Delta\Delta /MA Err I\Delta\Delta$
 000 - $77Z \Delta\phi 1 128 \phi\phi\Delta$

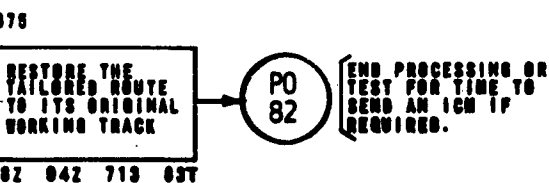
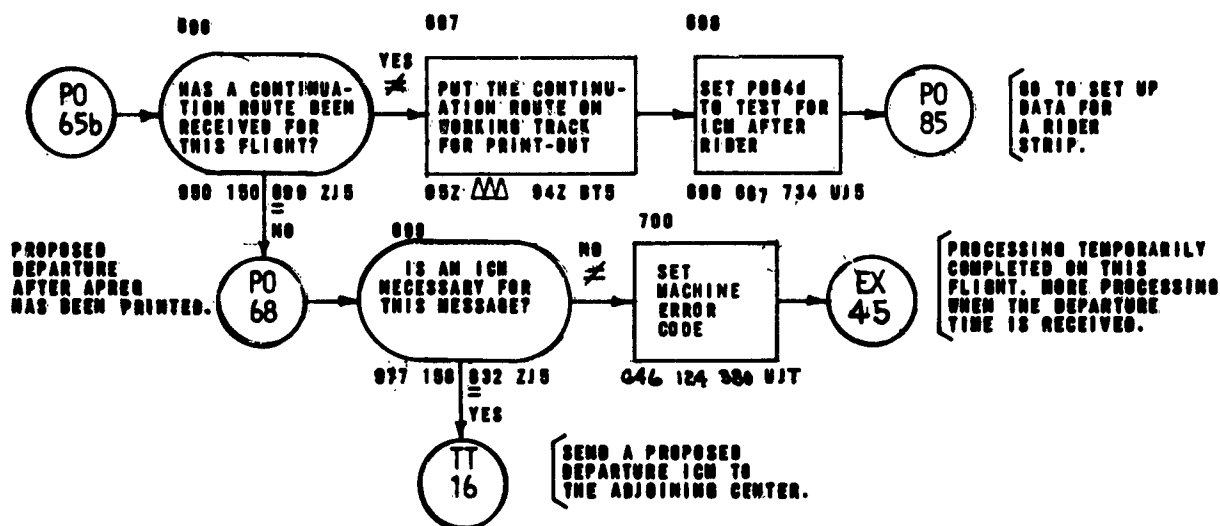
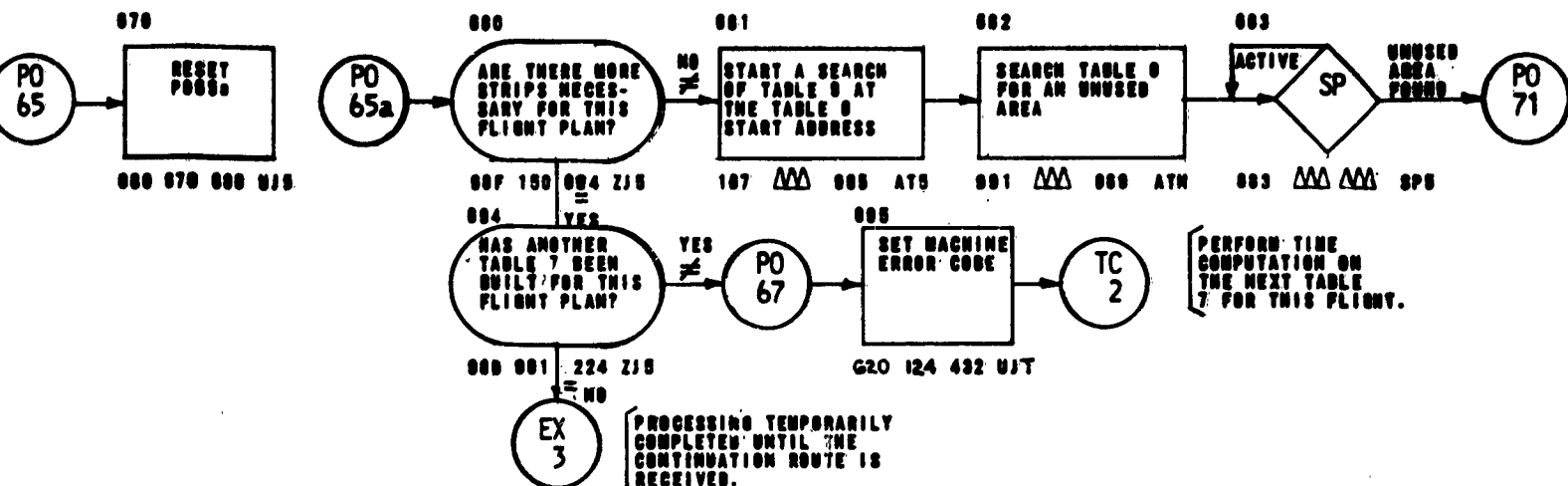




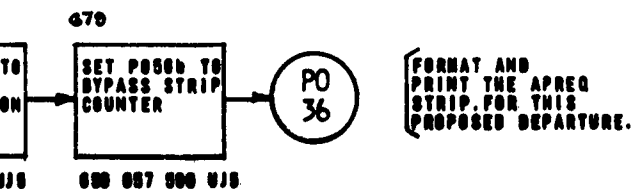
ENTRY IS MADE TO TYPEWRITER PRINT-OUT AT PO.7 TO REPRINT LAST STRIP; AND AFTER THIS REPRINT, OR IF NO REPRINT NECESSARY, TO THE TYPEWRITER PRINT-OUT ENTRY POINT CORRESPONDING TO THE NRP ENTRY POINT USED BY THE STRIP JUST FORMATED.

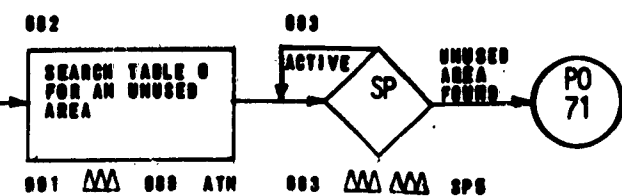




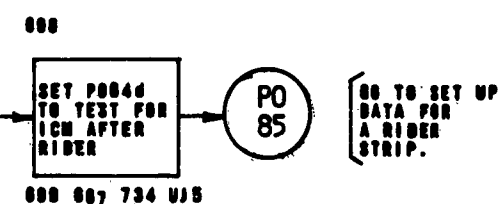


ON





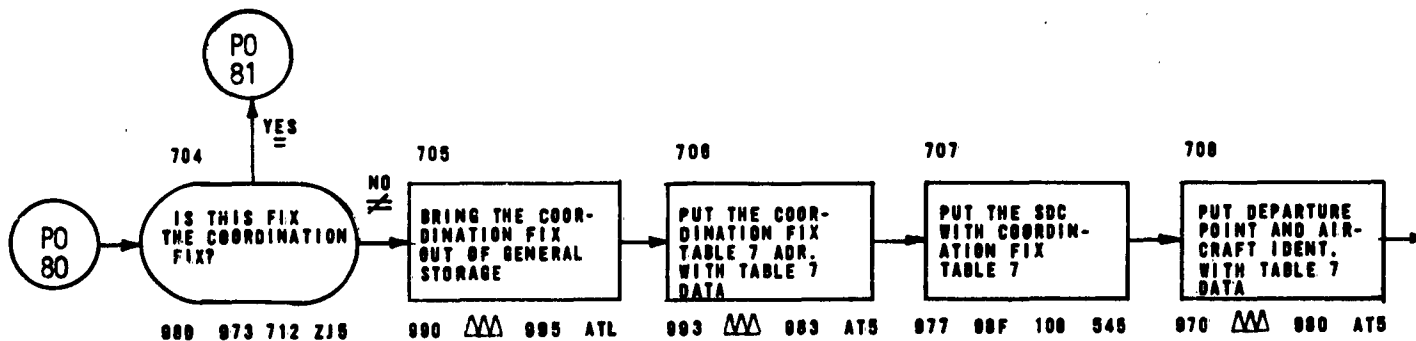
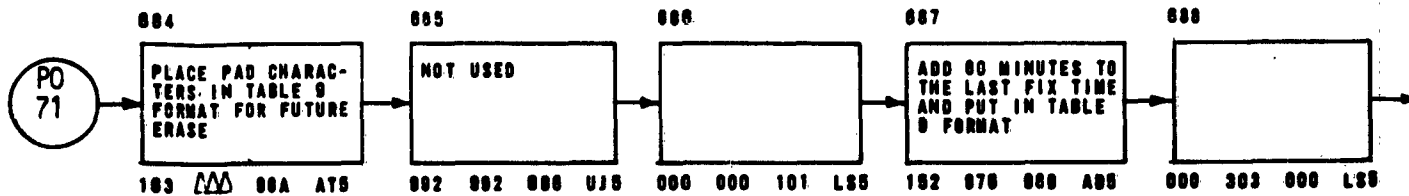
432 UJT



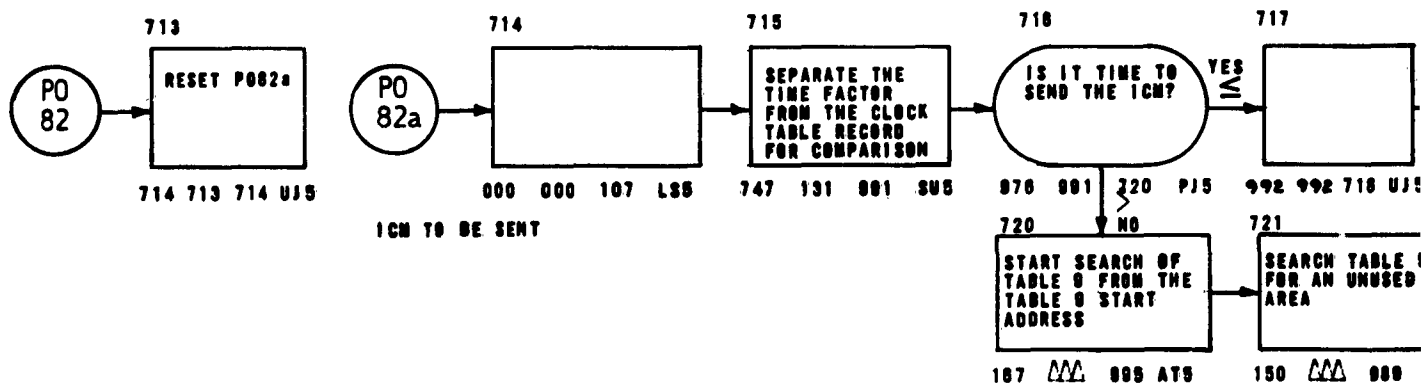
124 300 UJT

PROPOSED
E ICH TO
TRAINING CENTER.

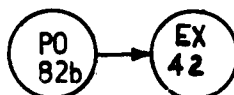




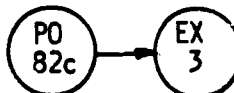
REPLACE THIS FIX DATA WITH COORDINATION FIX DATA FOR RIDER STRIP PRINT-OUT AND/OR ICM.



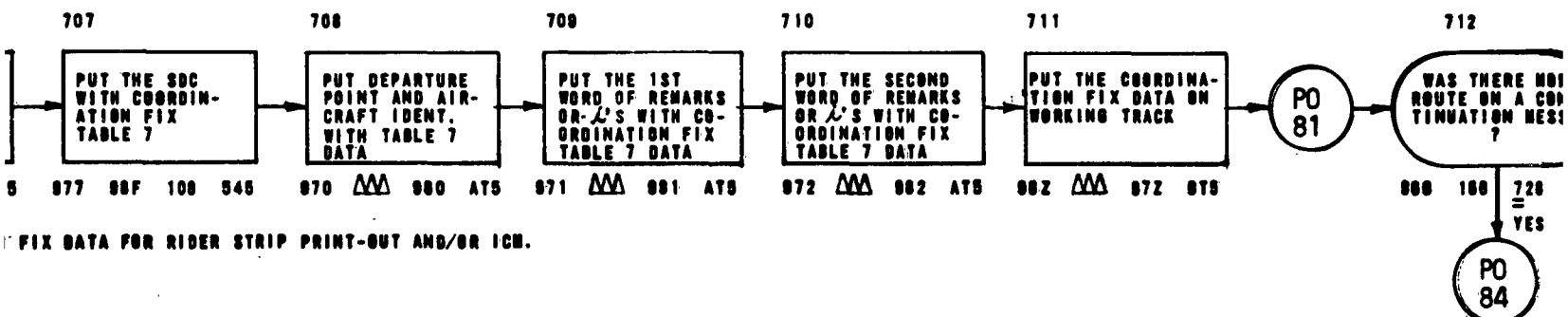
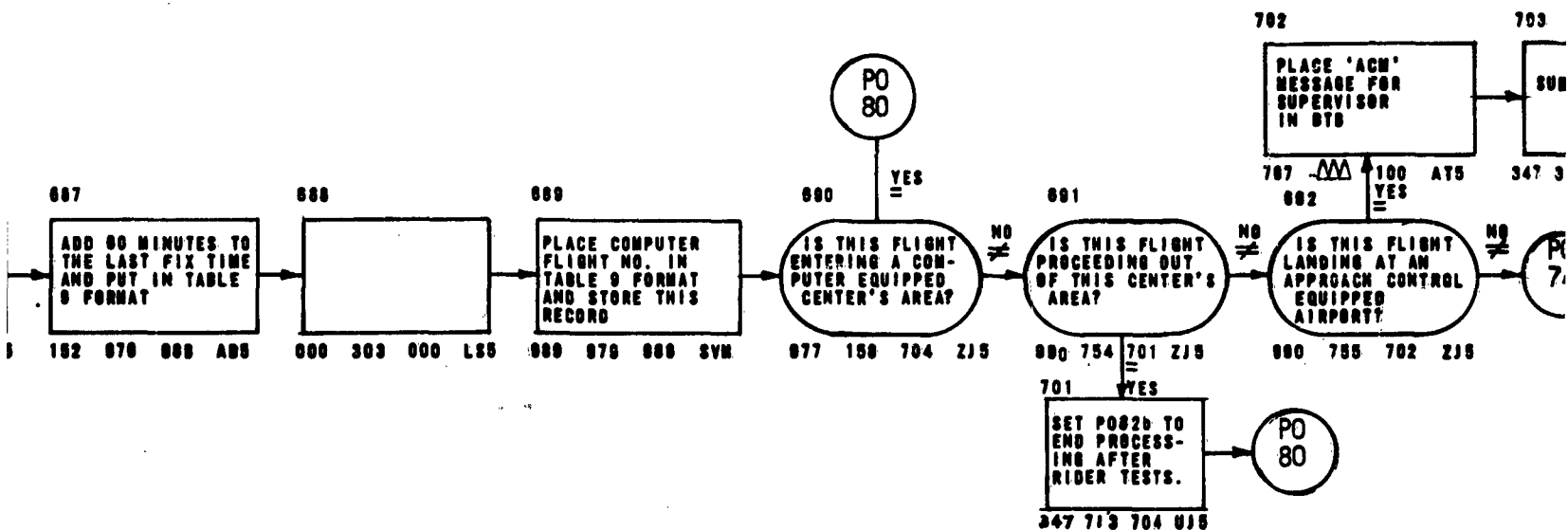
BUILD AND STORE



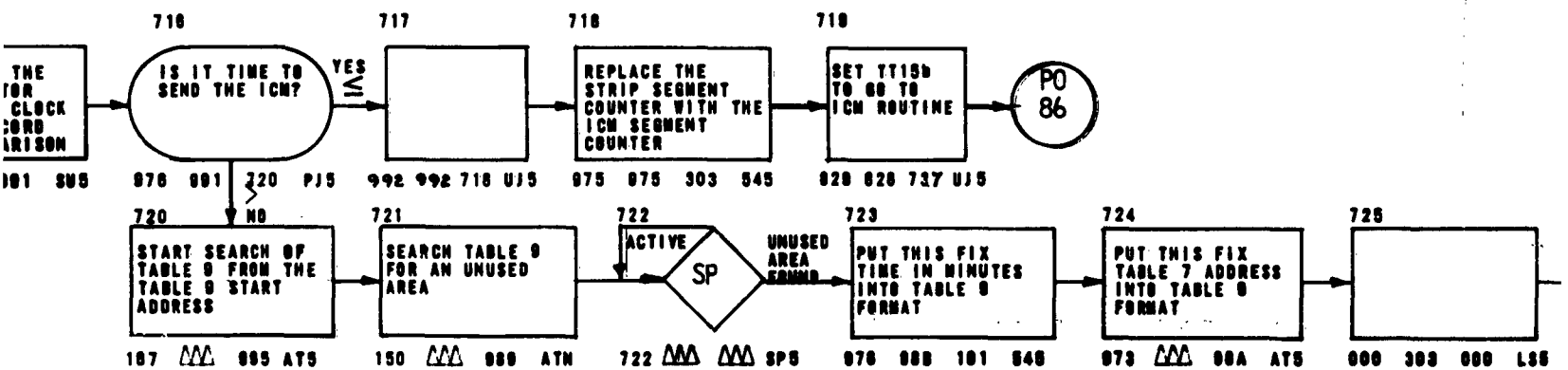
FLIGHT LEAVING THIS CENTER'S AREA BUT NOT ENTERING A COMPUTER EQUIPPED CENTER'S AREA. ALL STRIPS, INCLUDING RIDER STRIP WHEN CONTINUATION ROUTE WAS ON HAND AT THIS TIME, HAVE BEEN PRINTED.



STRIP REQUESTED FOR REPRINT HAS BEEN PRINTED INCLUDING A RIDER STRIP IF THE ROUTE HAS A CONTINUATION PORTION.



FIX DATA FOR RIDER STRIP PRINT-OUT AND/OR ICM.

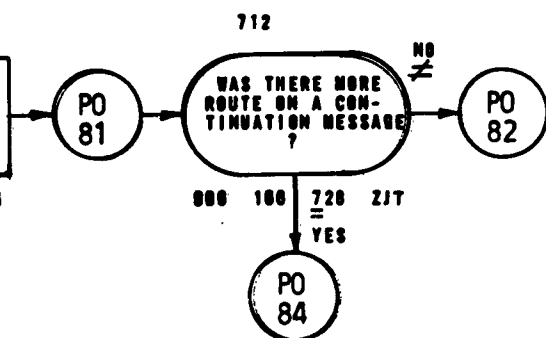


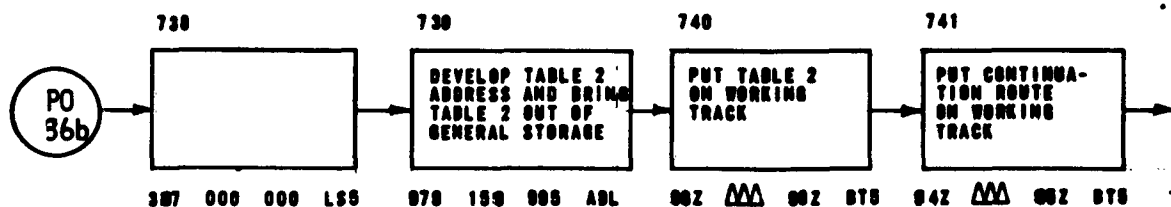
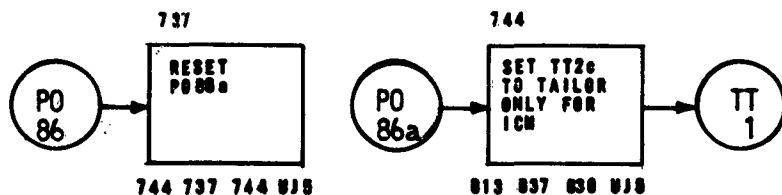
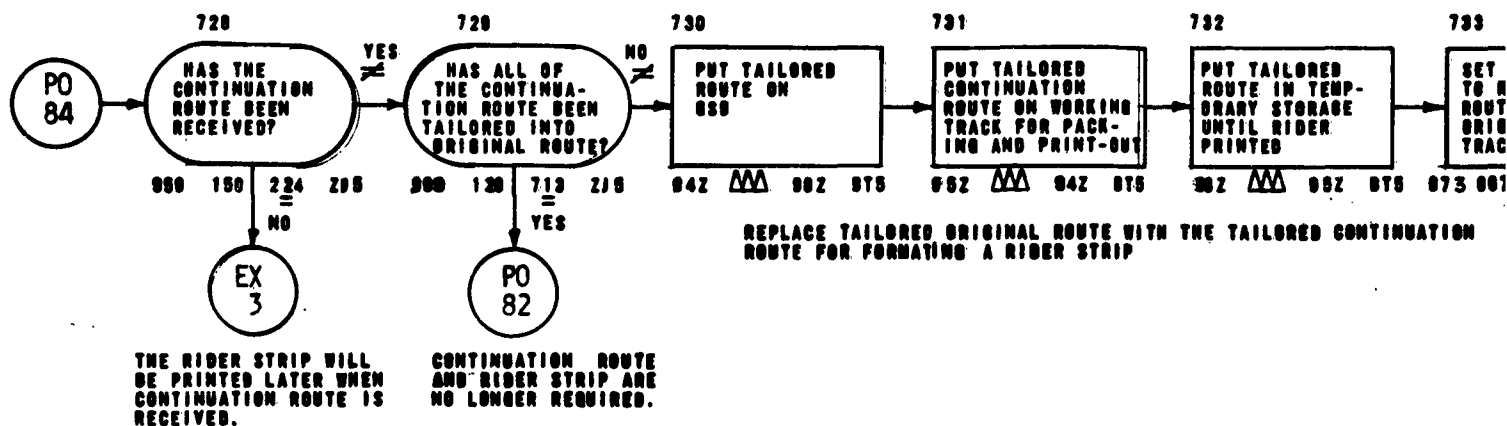
CENTER'S AREA COMPUTER EQUIPPED STRIPS, INCLUDING CONTINUATION ROUTE TIME, HAVE BEEN

BUILD AND STORE A TABLE 9 RECORD FOR FUTURE ICM.

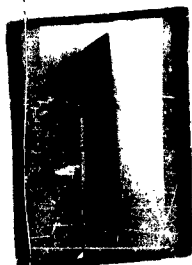
REPRINT HAS INCLUDING THE ROUTE PORTION.

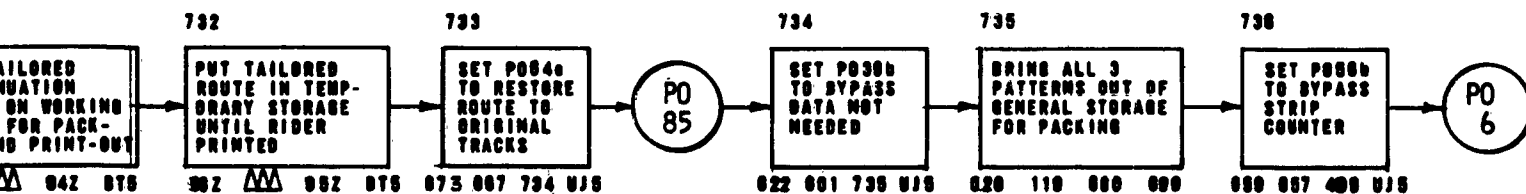




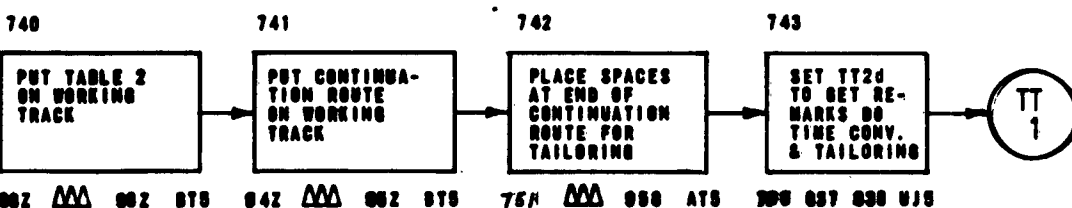


CONTINUATION ROUTE RECEIVED AFTER ALL ORIGINAL STRIPS HAD BEEN PRINTED WITHOUT THE CONTINUATION RIDER STRIP WAS JUST PRINTED WITH ALL OF CONTINUATION ROUTE. BOTH ROUTES MUST NOW BE TAILORED TOGETHER FOR THE ICM.



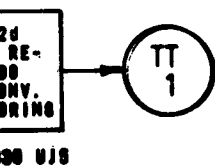
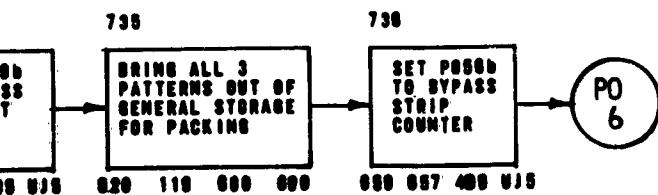


INAL ROUTE WITH THE TAILORED CONTINUATION
RIDER STRIP



STRIPS HAD BEEN PRINTED WITHOUT THE CONTINUATION
TION ROUTE. BOTH ROUTES MUST NOW BE TAILORED





128	Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ 1 Δ	1 constant.
131	X X X X X X 0 0 0 0 0 0	The current Clock Table record for this ten minute period.
136	- not used - r X X X X X X r	
139	- not used - r X X X X X X r	H.S.P. machine error counter.
150	Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ	Spaces comparator.
152	0 0 0 0 0 0 0 0 0 6 0 0	Time update constant.
158	i i i i i i i i i i i i	SDC comparator.
163	i i i i i i i i i	Pads constant.
166	i i i i i C T T Y i i i	Continuation route comparator.
167	Δ Δ Δ Δ 1 1 2 2 0 0 0 Δ	
745	i B i ? i i i B i ; i i	Table 9 starting address.
746	i i i i i i i X A i B i i	Red color code constant.
747	P i i i i i i i i i i i i	Coordination fix and approval request constants for the strip marking.
748	i i i i Δ Δ Δ Δ i i i i	
749	i i B i B i i " i i i B	Proposed comparator.
750	i i i i i i i i i i ? i i	Spaces comparator.
751	. . Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ	Lower and upper case constant.
752	i i i i i i i i i i l i i	Black color comparator.
753	i i i i i i i i i i i P i	Route fill constant.
754	O V E R i i i i i i i i	Duplicate strip comparator and update constant.
756	. . . . i i i i i i i i	
757	i i i i i i	Print constant.
		OVER comparator.
		Filed junction comparator.
		Tailored route comparator

The following are length of route segment comparators:

758	i	i	.	i	.	i	i	i	i	i	i	i	2 character comparator.
759	i	i	i	.	i	i	i	i	i	i	i	i	3 " "
760	i	i	i	i	.	i	i	i	i	i	i	i	4 " "
761	i	i	i	i	i	.	i	i	i	i	i	i	5 " "
762	i	i	i	i	i	i	.	i	i	i	i	i	6 " "
763	i	i	i	i	i	i	i	.	i	i	i	i	7 " "
764	i	i	i	i	i	i	i	i	.	i	i	i	8 " "
765	i	i	i	i	i	i	i	i	i	.	i	i	9 " "
766	i	i	i	i	i	i	i	i	i	i	.	i	10 " "

770	-	-	-	-	-	-	-	-	-	X	-	-	Working storage for modified duplicate strip counter.
-----	---	---	---	---	---	---	---	---	---	---	---	---	---

The remarks beside the above constants and factors define the prime purpose as used in this routine. The flow charts will define any secondary usage of these locations.